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ABSTRACT

An evaluation described the patterns of attendance and the factors associated with the persistence of adult education clients during the first 12 months following their enrollment in federally supported adult education programs. Data were gathered from a sample of 16,754 persons who entered a program during the 1-year period beginning April 22, 1991. Findings indicated the following: about one-third of all new clients enrolled in September or October; 85 percent of enrollees actually began instruction; of those who began instruction, clients studying English as a second language received a median of 77 hours of instruction over 16 weeks, adult basic education clients--31 hours over 10 weeks, and adult secondary education clients--26 hours over 8 weeks; and 11 percent of all new enrollees continued into a second year of instruction. Newly enrolled clients were more likely to begin instruction if they were enrolled in smaller programs or programs that did not emphasize outreach and recruitment activities, had low costs per client seat hour, or had substantial integration of social services. Clients who attended for 12 hours or more and those who attended for fewer hours were largely indistinguishable. The strongest predictors of persistence were support services that clients actually use, receipt of instruction during the day, and the type of learning environment. (Appendixes include study objectives, data collection forms, bias control issues, logistic regression summary tables, and index.) (YLB)

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ED 369 996

NATIONAL EVALUATION OF ADULT EDUCATION PROGRAMS

Third Interim Report

PATTERNS AND PREDICTORS OF CLIENT ATTENDANCE

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Third Interim Report

PATTERNS AND PREDICTORS OF CLIENT ATTENDANCE

Contract No. LC90065001

April 1994

Prepared for:

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400 Maryland Avenue, S.W., Room 3122
Washington, D.C. 20202

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This report is pursuant to Contract No. LC90065001. The names of the persons employed or retained by Development Associates, Inc., with management or professional responsibility for this phase of the project and this report are listed below. The amount to be charged to the U.S. Department of Education for the entirety of this contract is approximately $2,839,740.

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EXECUTIVE SUMMARY

Study Purpose

In September 1990, the U.S. Department of Education initiated the national evaluation of federally supported adult education programs. The central purpose of the study is to evaluate the potential of programs supported by the Basic State Grants section of the federal Adult Education Act "for significantly reducing deficits in the adult population with respect to literacy, English proficiency, and secondary education." The purpose of the evaluation's third interim report is to provide descriptive information on attendance patterns of adult education clients and factors associated with their persistence in the program.

Sources of Information

The report draws primarily on data from a sample of persons who entered a federally supported adult education program during the 1-year period beginning April 22, 1991. Attendance data for a 1-year period were obtained on 16,754 clients. In this report, the data have been weighted but no adjustments for nonresponse have been incorporated. As a result, numeric estimates will underestimate national counts. Weights have been used to provide unbiased national percentages and inferential estimates.

Major Study Findings

Patterns of enrollment and attendance

- About one-third of all new clients enroll in September or October.
- Eighty-five percent of individuals who enroll in adult education programs actually begin instruction.
- ESL clients who begin instruction receive a median of 77 hours of instruction over 16 weeks.
- ABE clients who begin instruction receive a median of 31 hours of instruction over 10 weeks.
- ASE clients who begin instruction receive a median of 26 hours of instruction over 8 weeks.
- Eleven percent of all new enrollees continue into a second year of instruction.

Newly enrolled clients are more likely to begin instruction if they are enrolled in

- Smaller-sized programs.
- Programs that do not emphasize outreach and recruitment activities.
- Programs that have low costs per client seat hour.
- Programs which have substantial integration of social services.

Differences between client populations who reach the federally defined 12-hour attendance threshold and those who do not

- Clients who attend for 12 hours or more and those who attend for less than 12 hours are largely indistinguishable.
- There is no discernable change in the attrition rate at or around the 12th hour of instruction.
- There is little difference in the level of satisfaction with adult education reported for those who attend at least 12 hours and those who do not.
- Some clients are satisfactorily served by adult education in less than 12 hours.

Distinguishing personal and programmatic characteristics of clients who receive a relatively large number of hours of instruction

- Long-term persisters are likely to be those who use support services.
- Long-term persisters are likely to receive instruction during the day, rather than evening.
- Motivational variables do not discriminate persisters from nonpersisters.
- In Adult Basic Education (ABE), older clients are more likely persist than younger clients, but age is not a substantial predictor for Adult Secondary Education (ASE) or English as a Second Language (ESL).
- ABE programs with relatively prestructured (as opposed to highly individualized) curricula are more likely to increase client persistence, but differences along this dimension of adult education instructional criteria are not predictive of persistence for clients in ASE or ESL.

- ESL clients are more likely to persist when enrolled in large classes, ABE clients are more likely to persist in medium-size to large classes (more than 10 clients), and class size is not related to persistence for ASE. Support for small class sizes is not indicated.

- Spending more per client seat hour is not positively related to persistence.

ACKNOWLEDGMENTS

This report was made possible by the help and cooperation of many persons. The study's Technical Advisory Group (Hal Beder, Connie Eichorn, Rachel Hidaka, Noreen Lopez, Jane MacKillop, Lennox McLendon, and Jack Mezerow) has made numerous helpful suggestions. Senior sampling and statistical consultants to the project, Thomas B. Jabine and Larry Hotchkiss, have also provided many useful comments and much technical expertise.

We also wish to acknowledge the support and contributions of the Development Associates staff. Laura Williams provided expert programming; Cynthia Hamill provided the graphics; Kate Hanley worked tirelessly with the local program directors to maintain the quality of the data; and Beth Glass provided editorial support.

Rob Barnes, the project officer from the Department of Education, provided strong direction throughout the study and made many insightful and useful comments on earlier drafts of this report. We are particularly grateful for his guidance with respect to the development of the persistence tables in chapter 2.

This report, would have been impossible without the continued participation and tolerance of the program directors, teachers, and staff of those adult education programs that are participating in our study. These dedicated professionals have continued to provide us with the data we request and the insights we need. We want them to know that their efforts are appreciated and that their commitment to their profession is an inspiration.

Malcolm B.Young, Project Director
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Nicholas B. Fitzgerald
Howard L. Fleischman

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Chapter 1
INTRODUCTION

Purpose of This Report

This is the third interim report from the National Evaluation of Adult Education Programs. The first interim report, completed in March 1992, describes the adult education service delivery system. The second interim report, completed in September 1993, describes the clients who entered adult education programs during the evaluation's 12-month intake period beginning in April 1991. The purpose of this report is to describe the patterns of attendance and factors associated with the persistence of adult education clients during the first 12 months following their enrollment in the program.

Overview of the National Evaluation

The U.S. Department of Education began the national evaluation of federally supported adult education services in September 1990. The central purpose of this study is to evaluate the potential of programs supported by the Basic State Grants section of the federal Adult Education Act "for significantly reducing deficits in the adult population with respect to literacy, English proficiency, and secondary education." The specific objectives of the national evaluation and an overview of the study's design are provided in appendix A of this report.

The evaluation began with a survey of all local adult education programs receiving Adult Education Act funds in the program year ending June 30, 1990 (Universe Survey).[1] That survey, which was completed in December 1990 with a 93 percent response rate, was used to identify a sample of local programs for participation in the longitudinal phase of the study. During the longitudinal phase, the following data were collected:

- Information about the characteristics and experiences of a nationally representative sample of clients who entered local programs during a 12-month period;

- Information about the amount and nature of instructional services received by these clients for 18 months after intake, along with periodic information about their academic progress; and

[1] The Universe Survey, a mail survey of all federally supported adult education programs, was conducted in the fall of 1990. See the first interim report for a discussion of the findings.

- Follow-up information from a subsample of these clients obtained through telephone interviews 6 months after they ceased receiving instructional services.

A nationally representative sample of 139 local programs agreed to participate in the longitudinal phase of the study, and data collection began in April 1991. The programs participating in this phase agreed to complete a questionnaire describing their program (Comprehensive Program Profile); they also agreed to provide data on the characteristics of a sample of clients who first enrolled in adult education between April 1991 and April 1992 and on the extent and type of instructional services those clients received for up to 18 months from their time of entry.

Staff of the participating local programs were trained to complete data collection forms and protocols and were reimbursed for costs associated with data collection. The national evaluation's research staff provided technical assistance with the data collection and monitored the quality of the data received.

The national evaluation is to consist of three interim reports and a final report. The first interim report was based on information from the Universe Survey and the Comprehensive Program Profiles. The second interim report provided a description of the characteristics of the study's 12-month entry cohort. This, the third interim report, draws on attendance and participation data for the 12-month period following the sampled clients' initial entry into the program. The study's final report, to be completed in late spring 1994, will draw on the full set of study data, including special studies of program costs and academic achievement.

Sources of Information for This Report

The data presented in this report are taken from five data collection forms provided by a nationally representative sample of programs on a 12-month cohort of their newly entering clients. These forms are as follows:

1. The Client Intake Record: Part A, which was completed for each sampled client, provides basic demographic information on the client as well as program information such as placement level, scheduled start date, and local intake procedures used for the client. Program staff completed the form from program intake records.

2. The Client Intake Record: Part B, which was to be completed for all sampled clients who attended at least one instructional session, provides more detailed information on client characteristics, including receipt of public assistance, living arrangements, and employment status. Part B also asked clients to rate the importance of 14 reasons for taking adult

education instruction. Spanish versions of the form were provided as needed.

3. The Client Update Record, which provides instructional and attendance data, was completed at 5-to-8-week intervals by local program staff for each client who received instruction during the reporting period for up to 18 months from the time of entry into the program.

4. The Client Test Record provides scores on tests of basic skills given at the time of enrollment, after 70 hours and after 140 hours of instruction (this testing information is available for clients from 111 local programs).

5. The Telephone Follow-up Survey provides information about the quality of the instruction, the reasons for termination, and the results of instruction from a subsample of clients 6 months after they left the program.

The report also draws on data from the two surveys of local adult education programs, a Universe Survey and a Comprehensive Program Profile. The first was a survey of all federally supported adult education programs. It was conducted in the fall of 1990 and obtained data from 2,619 (93 percent) of the local programs receiving federal Basic State Grants funds in the program year ending June 30, 1990. The Comprehensive Program Profile sought more detailed information about program structure, instruction, and operations. A Program Profile was obtained from 131 of the 139 local programs that agreed to participate in the longitudinal phase of the evaluation. In programs where data about individual clients were obtained from more than one instructional delivery site, data on the Program Profile pertaining to instructional variables were obtained from site directors, and site-level data rather than program-level data, have been used in the analyses.

Copies of the client intake and update forms are included in appendix B.

Adjustments for Incomplete Data

The study calls for a substantial amount of information on each client. Not all the data we expect to include in subsequent analyses were received or fully processed in time for inclusion in this report,[2] and not all of the data expected from some of the programs selected for the study will ever be received. To compensate for the incomplete information, we have taken the following actions:

- Adjusted sampling weights. Clients in the study were assigned a sampling weight based on the probability of their selection for the study. Each client's probability of selection was based on the probability that the client's program was selected, that the instructional delivery site was selected, and that any given client at the site was selected. Changes in the expected numbers of programs, sites, and clients in certain sites led us to adjust the originally assigned sampling weights. The effect of these adjustments was to maintain the nationally representative nature of the study's database. The sampling weight adjustments for this report are the same as those used in the analyses for the study's second interim report.

- Imputed some responses. For a small number of variables we have used other responses from the same client to impute missing data. Generally, however, we have elected to let sample sizes vary according to the particular variables involved in different analyses.

- Limited the database to those programs and clients for whom we had reasonably complete intake and update records. Analyses in this report are based on client intake and update records from 16,754 clients. These clients were enrolled in 118 local adult education programs. For each of these clients we have complete information on the variables included on Client Intake Record: Part A and on their attendance for the 12 months following enrollment.

There are two potentially important types of missing data for which the preceding steps do not account. These are data from clients and programs for which the current weight adjustments do not compensate, and clients for whom we have no Client Intake Record: Part B. As described in appendix C, we have investigated the potential impact of these missing data on our analyses, and we have concluded that the likelihood that systematic bias has been introduced by these missing data is extremely remote.

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[2] The report contains information on approximately 80 percent of the clients expected to be included in the study's final report.

Confidence Intervals Associated with Reported Data

The statistics presented in this report are based on probability samples of adult education students. The sampling errors for a stratified, multi-stage design such as the one used in this study generally differ to some extent from those associated with estimates from a simple random sample. Estimation of the actual sampling errors must take account of these "design effects." To minimize costs, estimation of actual sampling errors will be deferred until the data are complete.

Organization of This Report

Following this brief introduction, the report addresses the following major questions:

- What are the patterns of client enrollment and attendance, and how much instructional service do clients receive? (Chapter 2)
- What are the main reasons why clients enter and leave adult education programs? (Chapter 2)
- What distinguishes clients who receive instruction from those who enroll but do not? (Chapter 3)
- Are there meaningful differences in the characteristics of clients who reach the federally defined 12-hour attendance threshold and those who do not? (Chapter 3)
- What personal and programmatic characteristics distinguish clients who take relatively large numbers of hours of instruction from those who do not? (Chapter 3)

Throughout the report distinctions are made between clients enrolled in the program's three major instructional components: Adult Basic Education (ABE), Adult Secondary Education (ASE), and English as a Second Language (ESL). The analyses contained in the study's first and second interim reports make clear that the characteristics of clients in these three instructional programs differ, as do the types of instruction they receive.

Chapter 2
PATTERNS OF ENROLLMENT AND ATTENDANCE

This chapter describes the enrollment and attendance patterns of clients who entered adult education programs during the study's 12-month intake period.[3] The core of the chapter is a set of "persistence tables," which provide estimates of the enrollment and attendance patterns for these clients for the 12-month period following their enrollment in the program.

Appropriate Measures of Participation and Persistence

There are a variety of conceptually reasonable ways to measure participation in adult education programs. These include the following:

- Total weeks of enrollment. This is the number of weeks between the start and the termination of services, regardless of the amount of service received during that period. The calculations begin at the time a client enrolls in a program. Termination is defined as the last week the client received instruction during the first 12 months following enrollment. The elapsed time value for clients who enrolled but never received any instruction is 0; the value for those who were still receiving instructional services at the end of 12 months is 52.

- Total hours of instruction. This is a measure of the number of hours a client actually attends class or receives some other instructional service; this is the most frequently used measure in this report. It should be noted, however, that this measure makes no allowance for the fact that some clients are in programs that offer services for only 3 or 4 hours a week, while others are in programs that offer instruction for 6 or more hours a day.

- Total weeks of instruction. This is a measure of the number of weeks during which a client actually attends class. For some clients it may be a better indicator of sustained interest and persistence than the number of hours of attendance, because in some programs clients can complete a large number of hours in only a few weeks.

As exhibit 2.1 shows, there is a relatively high correlation among these measures. Nevertheless, there are conceptual as well as statistical differences among them that need to be kept in mind. Most of the analyses in this report will be in terms of total hours of instruction or total weeks of enrollment.

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[3] The intake period was from April 22, 1991, through April 21, 1992. Some programs began participation in the study after April 22, and in these cases the intake period was adjusted accordingly.

Exhibit 2.1
Correlation Among Three Measures of Client Participation and Persistence

Measure	Total Weeks of Enrollment	Total Hours of Instruction
All Components		
Total weeks of enrollment	1.00	
Total hours of instruction	.74	1.00
Total weeks of instruction	.91	.85
ESL		
Total weeks of enrollment	1.00	
Total hours of instruction	.82	1.00
Total weeks of instruction	.93	.90
ABE		
Total weeks of enrollment	1.00	
Total hours of instruction	.62	1.00
Total weeks of instruction	.87	.77
ASE		
Total weeks of enrollment	1.00	
Total hours of instruction	.63	1.00
Total weeks of instruction	.88	.75

Amount of Instruction Clients Actually Receive

This report is based on a probability sample of newly enrolled clients who are reasonably representative of newly enrolled clients in the United States.[4] Of the clients who enrolled for adult education instruction, only 84 percent actually received instruction from the program in which they enrolled within 12 months of the time of their enrollment. The amount of instruction for clients who received at least 1 hour was as follows:

Exhibit 2.2
Amount of Instruction Received During 12 Months by Clients who Began Instruction

Component	Median Number of Hours	Median Number of Weeks
ESL	77	16
ABE	31	10
ASE	26	8
Overall	39	10

As exhibit 2.3 shows, the ESL component not only enrolls the largest percent of clients (37.8 percent) but also has the smallest percent not beginning instruction (12.2 percent) and the largest percent reaching the 12-hour threshold used by the U.S. Department of Education as the cut-off point for inclusion in federal reports (77.4 percent). ESL clients also accumulate far more hours than clients in either ABE or ASE. The final row of the exhibit shows the distribution of hours within each component and nationally for clients who received 12 hours of instruction or more. For example, clients who accumulated 12 to 27 hours are in the lowest quartile (Q1) of all clients, whereas an ESL client could accumulate as many as 40 hours and still be in the lowest quartile of clients enrolled in ESL.

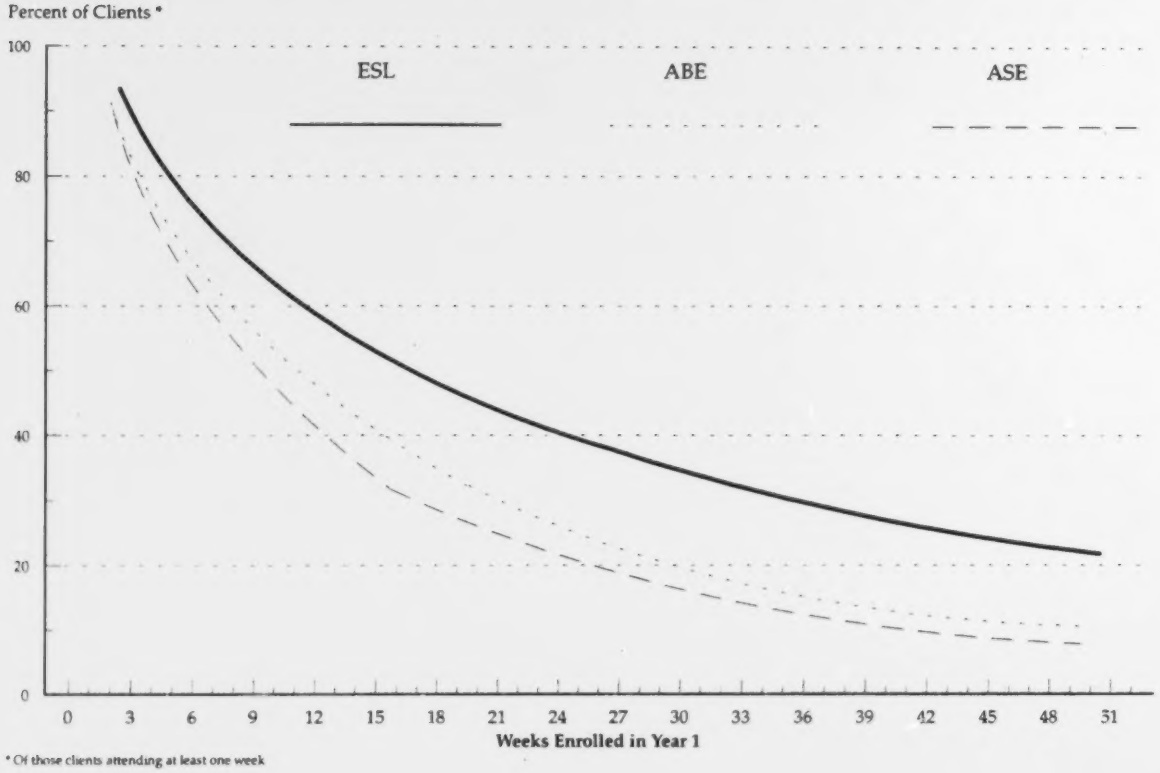
[4] The data base for this report consists of the 16,754 new clients about whom we had complete data for 12 months after their enrollment, as of the time these analyses were being done. As indicated in chapter 1, this represents about 80 percent of the total number of clients who will be included in the study's final report. We believe that the results of these analyses are nationally representative, but because all of the data from two large programs and some additional data from several other programs are not included, the numbers presented in the final report may differ somewhat from those reported herein.

Exhibit 2.3
Distribution of Clients by Hours of Attendance During the First 12 Months Following Their Enrollment, by Program Component

	Overall	ESL	ABE	ASE
Percent of all adult education enrollees	100.0	37.8	25.2	37.0
Percent of component enrollees failing to begin instruction	16.1	12.2	15.1	18.0
Percent of component enrollees with 1 to 11 hours of instruction	16.7	10.4	20.0	21.0
Percent of component enrollees completing at least 12 hours	68.1	77.4	65.0	61.0
Quartile distribution of hours of instruction completed by clients receiving at least 12 hours of instruction	Q1 - 12-27 Q2 - 28-58 Q3 - 59-134 Q4 - > 134	Q1 -12-40 Q2 -41-98 Q3 - 99-238 Q4 - > 238	Q1 - 12-24 Q2 - 25-48 Q3 - 49-93 Q4 - > 93	Q1 - 12-21 Q2 - 22-40 Q3 - 41-84 Q4 - > 84

Exhibits 2.4 and 2.5 show the persistence rates, measured as total weeks of enrollment, for clients who received at least 1 hour of instruction. Exhibit 2.4 compares the overall rate with the rates for the three instructional components. It shows that each of the three instructional components has the same fairly smooth rate of attrition; i.e., a rapid early decline, followed by a gradual decline, until between 9 and 24 percent of entrants are still active at the end of their first year.

Exhibit 2.4
Persistence Rates in Weeks for Clients Who Received 1 Hour or More of Instruction by Instructional Component



* Of those clients attending at least one week

Exhibit 2.5 provides a view of the distribution of the levels of persistence (as measured by weeks of enrollment) by census region and instructional component. For example, in the shaded row beneath the headings we see that among ESL clients in the Northeast who received any instruction, 25 percent completed 10 weeks or less, one-half (the median) were enrolled for 23 weeks or less, and 75 percent enrolled for 42 weeks or less.

Overall, clients in the West tend to be enrolled longer than clients in the other regions. In terms of length of time clients attend classes, the overall median number of weeks in the West is 14, as compared to 11, 8, and 8 in the Northeast, South, and North Central regions. In terms of hours of instruction, the ordering of regions is essentially the same. Clients in the West receive the most hours (60), with the median number of hours received being 44 in the Northeast, 28 in the South and 32 in the North Central regions.

Exhibit 2.5
Persistence Rates in Weeks of Enrollment for Clients Who Received 1 Hour or More of Instruction, by Census Region and Instructional Component

Census Region	Instructional Component	Weeks of Enrollment		
		25th Percentile	50th Percentile	75th Percentile
Northeast	ESL	10	23	42
	ABE	5	12	25
	ASE	3	8	17
North Central	ESL	2	10	30
	ABE	2	7	18
	ASE	2	9	24
South	ESL	3	8	21
	ABE	3	11	28
	ASE	2	7	17
West	ESL	4	18	52
	ABE	2	12	30
	ASE	2	7	21
Total	ESL	4	16	45
	ABE	3	10	24
	ASE	2	8	20

Models of Client Flows

Exhibits 2.6 through 2.9 report attrition patterns for clients in the program as a whole, and then for each of the three instructional components (see footnote 4). Each table divides the intake cohorts into bimonthly groups. The rows show the number of months of instruction the clients completed before leaving the program. For example, 24 percent of those who began in August or September left the program before completing 1 month.

Data from the tables can be used to follow various lines of inquiry. For example, using the data presented in exhibit 2.6, we can see that programs in August-September:

- enroll about one-third of a year's new clientele (502,763 of 1,474,415);
- are composed of 56 percent new enrollees and 44 percent who initially enrolled in some other month.[5]

Exhibit 2.7 shows that only 18 percent of ESL clients entering in August or September left before completing their first month, compared with 30 percent of ABE clients (exhibit 2.8) and 35 percent of ASE clients (exhibit 2.9).

ABE clients (exhibit 2.8) entering in August-September have a markedly lower incidence of very early exit (defined as prior to completion of 2 months) than ABE clients entering in any other entry period. Attrition averages 43 percent for entrants in this period, compared with an average of 53 percent in other periods.

ASE clients (exhibit 2.9) are those completing course work necessary to obtain their high school diploma or preparing to take the GED examination. The attrition rate for those beginning in August-September is considerably lower than the rate for

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[5] To determine the active population at any point in time, we must determine the number of new and continuing clients. Although data are presented in pairs of months, actual estimates were calculated using individual months, and columns may sum to more or less than 100 percent because of rounding. There were 502,763 new enrollees in August-September; 24 percent of those did not complete 1 month, which left 382,100 clients active. June-July had 129,080 new entrants, of which 45,178 (35 percent) were still active at the end of September. April-May had 134,002 new entrants, of which about 31 percent (41,541) were active at the end of October. By continuing this procedure for each month, we estimate a total of 619,424 clients active at the end of the August-September period, of which 62 percent are from the August-September period. The weighted enrollment of 1,474,415 should not be used as an estimate of new clients because it refers only to the weighted number for clients for whom we had completed update data and excludes two certainty programs. By including intakes from those programs, assuming an attendance pattern for those programs that is consistent with that seen in other programs, and making other adjustments that were described in the second interim report, we estimate that there were 1,893,811 students who first began instruction in the one year period April 22, 1991 to April 21, 1992. A simplified method for estimating the total number of students in attendance in a one-year period is described in appendix F.

other components. Because most students who enter ASE programs as their initial foray into adult education have already completed a large portion of their education (55 percent have completed at least 10 years), it follows that the amount of time needed to complete one's education goals may be less for those in ASE than in ABE or ESL, and few ASE students continue past their first year.

Exhibit 2.6
Proportion of All New Beginning Clients Exiting in Specified Number of Months from Time of Entry

Number of Months Before Exit	Time of Entry (Weighted number of enrolling clients)						
	Apr-May (134,002)	Jun-Jul (129,080)	Aug-Sep (502,763)	Oct-Nov (195,324)	Dec-Jan (214,802)	Feb-Mar (298,444)	Total (1,474,415)
0-1	0.42	0.45	0.24	0.37	0.34	0.33	0.33
1-2	0.09	0.08	0.13	0.11	0.11	0.11	0.11
2-3	0.06	0.07	0.10	0.11	0.12	0.11	0.10
3-4	0.03	0.05	0.03	0.06	0.09	0.06	0.05
4-5	0.06	0.04	0.05	0.05	0.05	0.03	0.04
5-6	0.03	0.03	0.05	0.06	0.04	0.03	0.04
6-7	0.02	0.02	0.04	0.04	0.01	0.02	0.03
7-8	0.02	0.03	0.08	0.02	0.02	0.02	0.04
8-9	0.02	0.01	0.04	0.02	0.02	0.02	0.03
9-10	0.02	0.04	0.02	0.02	0.02	0.02	0.02
10-11	0.02	0.04	0.01	0.01	0.02	0.01	0.01
11-12	0.06	0.01	0.02	0.02	0.01	0.01	0.02
Continuing	0.15	0.14	0.20	0.13	0.15	0.24	0.18

Exhibit 2.7
Proportion of All New Beginning ESL Clients Exiting in Specified Number of Months from Time of Entry

Number of Months Before Exit	Time of Entry (Weighted number of enrolling clients)						
	Apr-May (62,284)	Jun-Jul (56,172)	Aug-Sep (292,864)	Oct-Nov (68,840)	Dec-Jan (93,557)	Feb-Mar (177,463)	Total (751,180)
0-1	0.31	0.35	0.18	0.31	0.28	0.25	0.24
1-2	0.07	0.05	0.14	0.09	0.08	0.08	0.10
2-3	0.05	0.07	0.09	0.11	0.09	0.09	0.09
3-4	0.03	0.07	0.03	0.05	0.07	0.07	0.05
4-5	0.08	0.04	0.04	0.04	0.05	0.02	0.04
5-6	0.03	0.02	0.05	0.05	0.06	0.05	0.05
6-7	0.02	0.02	0.03	0.04	0.01	0.01	0.02
7-8	0.02	0.02	0.09	0.03	0.02	0.02	0.05
8-9	0.01	0.01	0.04	0.03	0.03	0.03	0.03
9-10	0.02	0.06	0.02	0.03	0.03	0.02	0.03
10-11	0.01	0.07	0.01	0.01	0.03	0.00	0.02
11-12	0.12	0.00	0.02	0.02	0.02	0.01	0.03
Continuing	0.23	0.20	0.25	0.18	0.23	0.35	0.26

Note: 0.00 indicates less than 0.005.

Exhibit 2.8
Proportion of All New Beginning ABE Clients Exiting in Specified Number of Months from Time of Entry

Number of Months Before Exit	Time of Entry (Weighted number of enrolling clients)						
	Apr-May (30,126)	Jun-Jul (29,912)	Aug-Sep (81,458)	Oct-Nov (55,374)	Dec-Jan (47,788)	Feb-Mar (40,918)	Total (285,576)
0-1	0.49	0.42	0.30	0.37	0.34	0.44	0.37
1-2	0.10	0.10	0.13	0.12	0.12	0.15	0.12
2-3	0.06	0.08	0.12	0.12	0.14	0.11	0.11
3-4	0.04	0.04	0.03	0.08	0.11	0.05	0.06
4-5	0.06	0.04	0.06	0.05	0.08	0.04	0.06
5-6	0.03	0.05	0.06	0.06	0.02	0.02	0.04
6-7	0.03	0.02	0.05	0.04	0.01	0.01	0.03
7-8	0.01	0.04	0.05	0.01	0.01	0.03	0.03
8-9	0.04	0.01	0.04	0.02	0.03	0.01	0.03
9-10	0.02	0.02	0.01	0.02	0.02	0.02	0.01
10-11	0.02	0.02	0.00	0.01	0.01	0.01	0.01
11-12	0.01	0.02	0.01	0.01	0.01	0.01	0.01
Continuing	0.10	0.13	0.15	0.09	0.09	0.10	0.11

Note: 0.00 indicates less than 0.005.

Exhibit 2.9
Proportion of All New Beginning ASE Clients Exiting in Specified Number of Months from Time of Entry

Number of Months Before Exit	Time of Entry (Weighted number of enrolling clients)						
	Apr-May (41,095)	Jun-Jul (42,704)	Aug-Sep (127,219)	Oct-Nov (69,344)	Dec-Jan (73,136)	Feb-Mar (79,909)	Total (433,407)
0-1	0.55	0.59	0.35	0.43	0.41	0.46	0.44
1-2	0.12	0.08	0.13	0.10	0.14	0.14	0.12
2-3	0.08	0.07	0.11	0.09	0.14	0.15	0.11
3-4	0.02	0.04	0.04	0.05	0.09	0.05	0.05
4-5	0.04	0.03	0.06	0.06	0.05	0.02	0.04
5-6	0.03	0.03	0.05	0.06	0.02	0.01	0.04
6-7	0.01	0.01	0.04	0.03	0.01	0.02	0.03
7-8	0.02	0.02	0.05	0.02	0.01	0.02	0.03
8-9	0.02	0.01	0.03	0.02	0.01	0.02	0.02
9-10	0.01	0.01	0.01	0.02	0.01	0.01	0.01
10-11	0.02	0.02	0.00	0.01	0.01	0.01	0.01
11-12	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Continuing	0.07	0.07	0.12	0.10	0.09	0.06	0.09

Note: 0.00 indicates less than 0.005.

Exhibits 2.10 through 2.13 provide estimates of attendance patterns for clients in the nation as a whole and then for each of the three instructional components.

In each of these exhibits, the population described is a hypothetical group of 100,000 new enrollees. Calculations are based on 2-month entry cohorts (January-February enrollees, for example), who were then followed for an entire year. The data are based on client update information behavior.[6] Using exhibit 2.10 as an example:

Column 1 is the number of months that clients complete from the time of their enrollment until they leave the program. If clients leave during the same month that they enroll, they are considered to have completed 0 month, whether or not they received instruction. If they are still enrolled at the end of 18 months they are considered to be continuing. The column shows the 1 month interval to which the entries in the remaining columns refer.

Column 2 is the number of clients enrolled at the beginning of month x. In our example, 56,218 clients were active at the beginning of their second month.

Column 3 reports the number of terminations that occur during the month. Thus, in month 2, the row described above, 10,009 of those enrolled at the start of the month (column 2) will leave.

Column 4 is the proportion of clients starting the month who left during the month. This figure is determined by dividing column 3 (10,009) by the number in column 2 (56,218). For example, the proportion of those leaving between months 2 and 3 is .18. This indicates that for any clients who are in their second month of instruction, there is a probability of 180 in 1,000 (or 18 in 100, or 1.8 in 10) that they will leave during month 2.

Columns 5 and 6 are provided to facilitate calculation of column 7. Column 5 is the number of months clients attended between months x and $x+n$, which is the sum of the number of clients active in the current month and the number active in the following month divided by 2. This calculation is based on the assumption that clients enter and exit a program at a constant rate throughout the month. This is, in our example, the number of clients who attended for 1 month during the client's second and third months. Thus 56,218(row 3) + 46,209(row 4) = 102,427/2 = 51,213(row 3, column 5).

Column 6 is the total number of client months which will be logged in this and subsequent months. In our example, the 399,228 is the sum of column 5 from the row being examined through the row labeled "Continuing."

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[6] Calculations were made using more than the three significant digits reported in these tables. If one uses only the reported data to make the calculations, small variations will result.

Column 7 is the mean number of months of client activity remaining for any client who has begun the current month. Thus, a client who had completed 1 month and was enrolled at the beginning of month 2, could have been expected to complete, on average, another 7.10 months.

The data in the persistence tables show the same trends as are apparent in exhibit 2.4. The number of active clients drops rapidly, with nearly 33 percent of enrollees completing less than 1 month before leaving. Exhibit 2.11 further confirms the extent to which clients in ESL stay longer than clients in either of the other two components. About 25 percent of ESL enrollees are still active at the end of their first year, as compared with about 11 percent of ABE clients and 9 percent of ASE clients.

From a practical perspective, the tables provide a clear look at the propensity for clients to leave quickly. Nationally, about 44 percent of all clients leave within 2 months of beginning their adult education course (the 56,218 active at the start of month 2 indicates that about 44 percent have were no longer active). After the first month, the number of months of activity remaining declines the longer a client stays. The rate of decline flattens somewhat in the later months, reflective of the very long term persisters.

This declining rate of departure indicates that the initial month of contact is crucial for long-term persistence. If the goal is to maximize the time that clients remain in the program, the tables highlight the need to retain clients past the first month. If one knows only that a client has enrolled, one should assume that client will complete about 5 months of instruction before leaving the program. However, if clients make it into their second month, they are, on average, likely to complete another 7 months, for a total of 9 months. Likewise, if they continue into their third month, they too are likely to complete nearly another 7 months, for a total of 10 months.

Exhibit 2.10
Estimates of Persistence for All New Education Clients

1	2	3	4	5	6	7
Months of Activity Between Enrollment and Termination	Number Active at the Start of Month	Number Leaving During the Month	Proportion of Those Starting the Month who Left During the Month	Total Client Months Logged During this Month	Aggregate Client Months Expected at Start of Month	Mean Number of Months Remaining at Start of Month
0-1	100,000	32,552	0.33	83,724	544,784	5.45
1-2	67,448	11,230	0.17	61,833	461,060	6.84
2-3	56,218	10,009	0.18	51,213	399,228	7.10
3-4	46,209	5,048	0.11	43,685	348,014	7.53
4-5	41,161	4,410	0.11	38,956	304,330	7.39
5-6	36,751	4,339	0.12	34,582	265,374	7.22
6-7	32,412	2,587	0.08	31,119	230,793	7.12
7-8	29,825	3,875	0.13	27,888	199,674	6.69
8-9	25,951	2,765	0.11	24,568	171,786	6.62
9-10	23,185	1,887	0.08	22,242	147,218	6.35
10-11	21,299	1,263	0.06	20,667	124,976	5.87
11-12	20,036	1,899	0.09	19,086	104,309	5.21
12-13	18,136	1,932	0.11	17,171	85,223	4.70
13-14	16,205	5,115	0.32	13,647	68,052	4.20
14-15	11,089	1,193	0.11	10,493	54,405	4.91
15-16	9,896	976	0.10	9,408	43,912	4.44
16-17	8,920	714	0.08	8,563	34,504	3.87
17-18	8,206	1,426	0.17	7,493	25,942	3.16
Continuing	6,780	-	-	-	-	-

Exhibit 2.11
Estimates of Persistence for All New ESL Education Clients

1	2	3	4	5	6	7
Months of Activity Between Enrollment and Termination	Number Active at the Start of Month	Number Leaving During the Month	Proportion of Those Starting the Month who Left During the Month	Total Client Months Logged During this Month	Aggregate Client Months Expected at Start of Month	Mean Number of Months Remaining at Start of Month
0-1	100,000	24,233	0.24	87,883	678,836	6.79
1-2	75,767	10,182	0.13	70,676	590,952	7.80
2-3	65,585	8,765	0.13	61,202	520,277	7.93
3-4	56,820	4,863	0.09	54,388	459,074	8.08
4-5	51,956	3,978	0.08	49,967	404,687	7.79
5-6	47,978	4,719	0.10	45,619	354,719	7.39
6-7	43,260	2,363	0.05	42,078	309,100	7.15
7-8	40,897	5,021	0.12	38,386	267,022	6.53
8-9	35,875	3,229	0.09	34,261	228,636	6.37
9-10	32,646	2,541	0.08	31,376	194,376	5.95
10-11	30,105	1,612	0.05	29,299	163,000	5.41
11-12	28,493	2,566	0.09	27,210	133,701	4.69
12-13	25,927	2,775	0.11	24,539	106,491	4.11
13-14	23,151	9,311	0.40	18,496	81,952	3.54
14-15	13,840	1,412	0.10	13,134	63,457	4.59
15-16	12,428	1,276	0.10	11,790	50,323	4.05
16-17	11,152	865	0.08	10,719	38,534	3.46
17-18	10,287	1,790	0.17	9,392	27,814	2.70
Continuing	8,496	-	-	-	-	-

Exhibit 2.12
Estimates of Persistence for All New ABE Education Clients

1	2	3	4	5	6	7
Months of Activity Between Enrollment and Termination	Number Active at the Start of Month	Number Leaving During the Month	Proportion of Those Starting the Month who Left During the Month	Total Client Months Logged During this Month	Aggregate Client Months Expected at Start of Month	Mean Number of Months Remaining at Start of Month
0-1	100,000	37,446	0.37	81,277	446,161	4.46
1-2	62,554	12,299	0.20	56,404	364,884	5.83
2-3	50,255	11,178	0.22	44,666	308,480	6.14
3-4	39,076	5,840	0.15	36,157	263,814	6.75
4-5	33,237	5,578	0.17	30,448	227,657	6.85
5-6	27,659	4,302	0.16	25,508	197,210	7.13
6-7	23,357	3,089	0.13	21,812	171,702	7.35
7-8	20,268	2,653	0.13	18,941	149,890	7.40
8-9	17,615	2,602	0.15	16,314	130,949	7.43
9-10	15,012	1,462	0.10	14,281	114,635	7.64
10-11	13,550	1,015	0.07	13,042	100,354	7.41
11-12	12,535	1,153	0.09	11,958	87,311	6.97
12-13	11,382	1,043	0.09	10,860	75,353	6.62
13-14	10,339	855	0.08	9,911	64,493	6.24
14-15	9,483	955	0.10	9,006	54,582	5.76
15-16	8,528	583	0.07	8,237	45,576	5.34
16-17	7,945	500	0.06	7,695	37,339	4.70
17-18	7,446	1,327	0.18	6,782	29,643	3.98
Continuing	6,119	-	-	-	-	-

Exhibit 2.13
Estimates of Persistence for All New ASE Education Clients

1	2	3	4	5	6	7
Months of Activity Between Enrollment and Termination	Number Active at the Start of Month	Number Leaving During the Month	Proportion of Those Starting the Month who Left During the Month	Total Client Months Logged During this Month	Aggregate Client Months Expected at Start of Month	Mean Number of Months Remaining at Start of Month
0-1	100,000	43,805	0.44	78,097	378,979	3.79
1-2	56,195	12,286	0.22	50,052	300,881	5.35
2-3	43,909	11,339	0.26	38,239	250,830	5.71
3-4	32,569	4,877	0.15	30,131	212,591	6.53
4-5	27,692	4,355	0.16	25,514	182,460	6.59
5-6	23,337	3,614	0.15	21,530	156,946	6.73
6-7	19,723	2,613	0.13	18,417	135,416	6.87
7-8	17,110	2,691	0.16	15,765	116,999	6.84
8-9	14,419	2,077	0.14	13,380	101,235	7.02
9-10	12,342	1,051	0.09	11,816	87,854	7.12
10-11	11,291	833	0.07	10,874	76,038	6.73
11-12	10,458	1,253	0.12	9,831	65,164	6.23
12-13	9,205	1,054	0.11	8,677	55,332	6.01
13-14	8,150	700	0.09	7,800	46,655	5.72
14-15	7,450	944	0.13	6,978	38,855	5.22
15-16	6,506	726	0.11	6,143	31,877	4.90
16-17	5,780	602	0.10	5,479	25,735	4.45
17-18	5,178	871	0.17	4,742	20,256	3.91
Continuing	4,307	-	-	-	-	-

Note: 0 indicates less than 0.5.

Consistency of Client Attendance

Unlike most elementary and secondary school services, many adult education classes are available for 12 months during a year,[7] but almost none of the clients of those services are required to attend. For reasons of economic or familial necessity or simply of personal preference, many clients in adult education programs attend intermittently. Clients come for a period of time, are gone for several weeks or more, and then return. Sometimes the breaks in continuity are as long as several months or more.

It has been long established in the study of elementary and secondary school achievement that test scores decline over the summer months when schools are closed. It is reasonable to speculate that a similar loss may occur with adults who miss extended periods of instruction. If this is the case, the total number of hours or weeks of enrollment or instruction over the course of a year may not be a useful predictor of client academic achievement. To understand the relationship between attendance and learning gains, it may be important to know in more fine detail about the consistency, as well as amount, of client attendance.

An initial step toward investigating this relationship is to develop an operational definition of consistent attendance. An appropriate operational measure of consistency should distinguish between brief absences or periods of time when the program is closed or not offering instruction for the particular client, and prolonged absences that might be expected to interfere with learning gains. Research with public-school-age populations indicates that 8 weeks seems a reasonable cut-off point as a definition of extended absence. To assess the extent to which there are substantial breaks in client services within a year, exhibit 2.14 presents the distribution of the consistency of attendance by clients during the 12 months after their initial enrollment. As the exhibit shows, of the clients who receive instruction, about 13 percent begin, miss a continuous period of 8 weeks or more of instruction, and then return to classes during the course of a year. As is also shown, clients in ASE show a slightly lower incidence of discontinuity. Because ASE clients stay for shorter periods, the relative opportunities for extended discontinuities are fewer.

[7] The typical program offers classes between 10 and 11 months each year (see the first interim report, pp. 61-62).

Exhibit 2.14
Percent of Clients With and Without Discontinuity of Service (8 weeks' duration) by Instructional Component

Component	Percent of Clients	
	No Discontinuity	Discontinuity
ESL	86	14
ABE	87	13
ASE	89	11
Overall	87	13

If we modify the definition of discontinuity to include any breaks in attendance of at least 1 week, the results for those who took at least 12 hours of instruction are presented in exhibit 2.15. Interestingly, those who had either no break or a break of 2 weeks form the two largest groups.

It is also the case that 66 percent of the clients who take at least 12 hours of instruction are never absent for more than 2 weeks in a row. This finding is counter to the common perception that most clients start and stop their instruction many times, and have frequent extended absences. It is also true, however, that nearly one-quarter (23 percent) of all clients are absent longer than 4 weeks at a time and subsequently return to class. This finding may be of interest to those programs that drop clients from their rolls after 3 straight weeks of absence.

Exhibit 2.15
Percent of Enrollees with Selected Periods of Discontinuity, by Instructional Component

Number of Weeks of Continuous Nonattendance with Return	Percent of Enrollees who Received at Least 12 Hours of Instruction			
	ESL	ABE	ASE	Overall
0	26	22	27	26
1	13	19	19	16
2	22	27	25	24
3-4	11	11	11	11
5-6	13	5	5	8
7-8	4	4	3	4
9-10	2	2	2	2
11 +	9	10	8	9

Reasons for Client Attrition

Relatively little is known about the reasons why clients leave adult education programs. As part of the national evaluation, we surveyed available published and unpublished literature and contacted other researchers to determine what was known about the attendance patterns of adults in basic skills and comparable adult education programs. Essentially, we found no empirical information on which to base comparisons of the attendance patterns of adults in the federally supported programs. Nor, therefore, could we identify a referent group to use as a basis for assessing whether the rapidly declining attendance rates that we have found are unique to the federal programs or are endemic to programs for these types of adults.

To gain further insight into this matter we reviewed available literature on client attrition and on barriers or deterrents to participation. For many years the federal adult education program's Annual Performance Reporting Form has sought information from states on the number of clients who have left programs before completing their objectives. The current federal reporting form lists 11 categories of reasons, including "other known reasons" and "unknown reasons." Because the information the Department of Education receives must ultimately come from local

program staff, rather than clients, it is not accorded a high level of credence by many professionals in the field.

In his 1991 book on adult education issues and practice, Beder devotes a chapter to summarizing the research literature on nonparticipation. Although much of that literature focuses on getting adults to enter educational programs, it is reasonable to assume that there is a considerable overlap in the factors associated with initial entry and sustained participation. Bader's review of literature on barriers and deterrents to participation and available studies on reasons why clients withdraw[8] suggest that, excluding cost (because there is no charge to the client for participation in the federal adult education program) five categories of variables or factors influence participation:

1. Initially perceived relevance or motivation, such as the clients' belief regarding the amount of value to be derived from receiving instructional services. In the context of the federal adult education programs, this factor may be a desire to learn English, to obtain a high school equivalency diploma, to comply with the requirements of an employer or social welfare program, or simply to have positive social interactions.

2. Personal psychological factors, such as lack of self-confidence in learning abilities or general avoidance of social involvements.

3. Individual or family circumstance over which neither the client nor the program has any control, including ill health of the client or family member, a move outside the program service area, or a change in employment conditions.

4. Conflicts of time, place or other circumstance for which potential programmatic remedies exist, including a need for child care, transportation, safer facilities, or flexible instructional hours.

5. Perceived lack of quality or value of the program after receiving some instruction, including a belief that the desired material was not being covered, that progress was too slow, or that the instructional style or conditions were unsuitable.

The first two of these factors seem highly germane to a client's decision to enroll in instruction, but only the last three appear relevant to continued persistence

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[8] For example, Development Associates (1980, p. 188) reports that the four reasons most frequently cited by a sample of 540 interviewed adults who had withdrawn from local adult education programs were employment conflicts (38 percent), personal or family illness (26 percent), child care responsibilities (16 percent), and lack of access to transportation (10 percent).

once instruction has begun. To assess the importance of these variables, we have analyzed preliminary data from the Telephone Follow-up Survey of a sample of the study's clients 6 months after they left the program. As part of that survey we asked the former clients: "What were your major reasons for leaving your class or instructional program?" Responses were coded in terms of 17 categories, which collapsed into the four broad categories shown in exhibit 2.16. The information in the exhibit is from the sample of 3,403 clients with whom we had completed interviews at the time the database for this report was established. These respondents are representative of about 340,000 new clients, about 19 percent of the estimated number of new clients overall. Although statistical adjustments have not been done to make this sample fully representative of all new clients,[9] we believe the number of responses is sufficiently large to provide useful insight into the reasons why clients who begin receiving instruction leave after receiving fewer hours of instruction than might be initially expected.

Exhibit 2.16
Distribution of Clients by Reasons for Leaving the Program

	ABE	ASE	ESL	All Components
Left Satisfied	43 %	54 %	25 %	44 %
Completed program	28	35	15	28
Achieved personal goal	5	7	2	5
Outside Events	44	36	62	44
Family/child care	12	9	12	10
Transportation	4	3	5	4
Change of job	13	12	26	16
Instructional Factors	10	9	11	11
Dissatisfied	4	4	4	4
Other Reasons	3	1	2	1

As the exhibit shows, about a quarter of the ESL clients and about half of the ABE and ASE clients left their program saying they were satisfied, and about a third

[9] For the final report, adjustments will be made to the full telephone follow-up sample to ensure the data are statistically representative of new clients.

of all three groups indicated that their personal goals had been met or that they had completed their program of study (e.g., had completed one term or level of instruction). Of those clients who reported leaving the program for reasons other than being satisfied, 20 percent indicated that they left because they were dissatisfied with the instruction or some other aspect of the program, while 80 percent indicated their departure was related to outside events rather than the nature of the program. Of these, it can be argued that clients' problems with child care or transportation could at least theoretically be addressed by a change in program design, and that therefore about 55 percent of the clients who left unsatisfied did so for a reason that was within the local program's control.

Summary and Conclusions

In this chapter we have provided summaries of the enrollment and attendance patterns of clients who entered adult education programs during the study's 12-month intake period. Tables based on the first year of attendance data demonstrate the wide variation between the median attendance for clients in ESL and those in ABE or ASE. We have shown that there is a heavy loss of clients between enrollment and the start of instruction, and that attrition thereafter is fairly steady until about 18 percent of all clients are still receiving instruction after 1 year. We then presented tables that summarize the attendance of a 1-year intake group. These tables allow us to estimate the average number of months remaining in a client's tenure on the basis of the number of months already attended.

We then examined the incidence of instructional discontinuity and determined that well over half of the clients in each component had a maximum break in instruction of 2 weeks or less and that about a quarter of all clients had no breaks in their instruction.

In attempting to determine why clients left the program we used a preliminary examination of the Telephone Follow-up Survey and found that only about 11 percent of clients attributed their departure to instructional factors. Some 44 percent of all clients who left said that they were satisfied with their educational experience; another 44 percent said that outside events caused them to leave, with a change of jobs being the cause most frequently cited.

In conclusion, enrollment in adult education, while spread over the entire year, is concentrated in the September-October and January-February periods. Getting those students who register into actual instruction is probably the single most important factor in ensuring that the students attend for a meaningful period of time. Attrition after the initial month is generally steady, with no real peaks of departures. The attrition curves for all components are very similar, with ESL being the least dramatic. Clients generally report that they are satisfied with their adult education

experience and that changes in family or employment circumstances were the most frequent causes for leaving the program.

The next chapter addresses questions associated with attrition and persistence by comparing adult education clients in six analytic groups.

Chapter 3
ANALYSIS OF DIFFERENCES AMONG ADULT EDUCATION CLIENTS GROUPED BY EXTENT OF ATTENDANCE

The study collected data on a national sample of adults who enrolled in adult education programs, but there is an obvious and important distinction between enrolling for services and actually receiving them. In this study we found that 16 percent of the adults who enrolled for services never attended a class and therefore received no instruction.

It is widely believed in the U.S. Department of Education that at least 12 hours of instruction must be received before academic progress can be achieved. Therefore, the Department's adult education reporting system distinguishes between clients who receive more and less than 12 hours of instruction, including only those receiving 12 hours or more in estimating the number of adult education clients and preparing other program analyses. Of our sample of newly enrolled clients, in addition to the 16 percent who received no instruction, another 18 percent ended their instruction before receiving 12 instructional hours. Thus about 65 percent of all newly enrolled clients received 12 hours of instruction or more.

This chapter addresses the following questions:

- What distinguishes clients who receive instruction from those who enroll but do not?
- Are there meaningful differences in the characteristics of clients who reach the federally defined 12-hour attendance threshold and those who do not?
- What personal and programmatic characteristics distinguish clients who take relatively large numbers of hours of instruction from those who do not?

In brief, we found that variables within the control of local programs are important predictors of whether or not clients begin instruction and of how many hours of instruction they receive. We also found there to be no empirical basis for using 12 hours as a cut-off point for including clients in the federal reporting system.

At this point we should also emphasize that one should not assume that it is necessary for a student to accumulate many hours to accomplish their goals. Some students are able to obtain their GED after receiving only a few hours of instruction, and others are able to learn specific employment-related skills in a relatively short period of time. As will be discussed in the study's final report, the relationship between amount of attendance and client outcomes is complex, and it is not always appropriate to treat clients' persistence as a measure of program effectiveness. It should also be noted that predictors and causes are not necessarily the same.

Definitions of Client Groups (1-6)

For the purposes of this chapter, our sample of new enrollees was divided into six analytic groups based on the number of hours of instruction received:

- Group 1--Clients who enrolled but received no instruction;
- Group 2--Clients who received from 1 to 11 hours of instruction (i.e., clients who are excluded from the federal reporting system);
- Group 3--Clients who received 12 or more hours of instruction and were in the lowest attendance quartile for their instructional component (i.e., clients included in the federal reporting system with the least number of instructional hours);
- Group 4--Clients who received 12 or more hours of instruction and were in the second attendance quartile for their instructional component;
- Group 5--Clients who received 12 or more hours of instruction and were in the third attendance quartile for their instructional component; and
- Group 6--Clients who received 12 or more hours of instruction and were in the fourth attendance quartile for their instructional component (i.e., clients with the greatest number of instructional hours). Sustained persistence is defined throughout this chapter as membership in the fourth attendance quartile of clients who received at least 12 hours of instruction.

The number of hours of attendance associated with clients in each of the six analytic groups is presented by instructional component in exhibit 3.1. For clients who received 12 or more hours of instruction, ASE clients had the shortest stay in adult education, with a median of 40 hours of instruction over a 1-year period. The median ABE client attended adult education for 48 hours, which was approximately half the amount of instruction received by the typical ESL student over the same 1-year period of time (i.e., a median of 98 hours).

Exhibit 3.1
Hours of Attendance for Six Analytic Groups, by Program Component

	Hours of Attendance		
	ABE	ASE	ESL
Group 1 (no service)	0	0	0
Group 2 (early leavers)	1-11	1-11	1-11
Group 3 (quartile 1)	12-24	12-21	12-40
Group 4 (quartile 2)	25-48	22-40	41-98
Group 5 (quartile 3)	49-93	41-84	99-238
Group 6 (quartile 4)	94-1,019	85-949	239-1,260

Variables Examined and Procedures Used

Logistic regression analysis[10] was used to identify predictors of attendance for each of the three instructional components (ABE, ASE, and ESL). A product of the procedure is a calculation of the odds that, all other things being equal, a client with a particular value for a variable will be in a particular group. The findings reported in this chapter as those that are *substantially significant predictors* are those that increase the odds of group membership by a factor of at least 1.5.[11] We have elected to use a 50 percent change in odds to characterize a variable as making a substantial contribution to predicting client attendance because, given the size of our sample, statistical significance does not necessarily indicate a meaningful relationship. Appendixes D and E contain tables that summarize the results of the models and discuss how they should best be interpreted.

The variables used in conducting the analyses reported in this chapter are defined briefly below.

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[10] Logistic regression was used because our objective was to predict membership in selected attendance groups and because hours of attendance is not normally distributed.

[11] An odds factor of 1.5 represents an odds ratio of 60/40, which means that the chances are at least 6 in 10 that a characteristic predicts membership in a specific attendance group.

Client Background Characteristics

Age, defined as 16-21 years, 22-30 years, 31-45 years, and over age 45.

Gender.

Race/ethnicity, defined as American Indian/Alaskan Native; Asian/Pacific Islander; black, non-Hispanic; Hispanic; and white, non-Hispanic.

Prior educational attainment, defined as highest level of education attained (no high school diploma or its equivalent <GED>, high school diploma or GED, or postsecondary certification or degree), or years of school completed prior to enrolling (eight ordered categories from zero to more than 12 years).[12]

Employment status, defined as employed or not employed (the "not employed" category includes persons who are seeking employment and those who are not in the labor market).

Welfare status, defined as receiving payments or not receiving payments at the time of enrollment.

Marital status, defined as currently married or not.

Residential stability, defined as whether or not clients were living in the same county 5 years before the time when they enrolled.

Client Motivations for Enrollment

Required enrollment, defined as enrollment required by client's employer or another program or agency (e.g., public welfare) versus otherwise (satisfying family, friends, or other personal or employment goals).

Primary motive for enrolling, defined as improvement of basic skills, improvement of literacy skills, improvement of employability, or improvement of self-concept.[13]

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[12] Because the two indicators of educational attainment were highly correlated with each other, only one was used as a predictor in any given regression model. This choice was based on which of the two indicators correlated highest with membership in the attendance group of interest.

[13] Derived from a factor analysis of the extent to which 14 reasons were important for new clients to enroll in adult education. Primary motive as a predictor of attendance was measured as a client's mean factor score.

Program Setting [14]

Program size, defined as very large (over 5,000 clients), large (1,000 to 5,000 clients), medium size (500 to 999 clients), and small (less than 500 clients).

Type of sponsor, defined as programs administered by local education agencies (LEAs), community colleges, and volunteer organizations/community service groups.

Type of community served, defined as a large city in a major metropolitan area, the remainder of a major metropolitan area, a small metropolitan area, or a non-metropolitan area.[15]

Program organization and structure

Number of months classes offered, defined as programs that offer services for 8 months or less (part-year), versus those offering services for 9 months or more (full-year).

Integration of services, defined as high, medium, or low; derived from an indicator measuring the coordination of services with other agencies and the breadth of services that programs offer their clients.[16]

Use of support services, defined as whether or not clients use support services.[17]

Program outreach efforts, defined as high, medium, or low on the basis of a composite measure of activities designed to attract or recruit new clients; the composite has five components which are described in the study's first interim report (pp. 46-48): recruitment methods, use of staff for recruitment, use of volunteers for recruitment,

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[14] Except for use of support services and as otherwise noted for instructional variables, client scores for all independent variables pertaining to program characteristics (program setting, program organization and structure, and program staffing characteristics) are derived from the score assigned to the program in which the client was enrolled.

[15] A major metropolitan area is defined as having a population of 1.5 million or more; a large city in major metropolitan areas as having a population of 500,000 or more; and small metropolitan areas as any community located within a standard metropolitan area with a population of less than 1.5 million.

[16] For a detailed description of this variable see the first interim report (pp. 39-45) .

[17] Overall, 25 percent of clients used one or more of nine types of support services (e.g. counseling, child care, transportation) provided by their adult education program (33 percent of ABE clients, 29 percent of ASE clients, and 15 percent of ESL clients). Analyses for this chapter compared clients who received no services with those who used support services during their period of active enrollment derived from the Client Update Record.

recruitment support from other organizations, and provision of staff in-service training on recruitment.

In-service training on retention, defined as whether or not provided.

Cost per client seat hour, defined as high, medium, and low; derived from 12 case studies of program costs.[18]

Program staffing characteristics[19]

Professional commitment, defined whether at least one of two conditions was present: a majority of the instructional staff have more than 3 years of adult education teaching experience or at least one staff member is certified in adult education (see the discussion of careerism in the first interim report, pp. 26-27).

Presence of full-time staff, defined as whether or not the program staff has at least one full-time administrator and one full-time teacher (see the first interim report, p. 27).

Instructional context and orientation

Class size, defined as classes of 1-10 clients, 11-20 clients, 21-30 clients, and 31 clients or more; derived from the Client Update Record.

Instructional philosophy, defined as the extent to which the program's adult education curriculum emphasizes academic versus workplace/life skills as measured by a five-point scale from the Comprehensive Program Profile.[20]

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[18] Medium cost is defined as the average cost per client for each hour of instruction (mean client seat hour cost is $4.57). High and low costs reflect client seat hour costs that are one standard deviation above or below the mean.

[19] The first interim report (pp. 26-28) presented a composite measure of program professionalism based on data from the Program Profile and Universe Survey. It consisted of the provision of selected kinds of in-service training for staff, the careerism of instructional staff, the and presence of full-time staff. The composite measure of professionalism combined the three components to yield four categories: low, moderately low, moderately high, and high. Exploratory analyses indicated a weak and contradictory relationship between the composite measure and sustained client attendance. Subsequent analyses were conducted by disaggregating the composite measure, and the final analyses examined two predictors of attendance: professional commitment and use of full-time staff.

[20] In programs with multiple instructional sites, responses to questions on the Comprehensive Program Profile dealing with instructional philosophy and curriculum orientation were obtained from the directors of the specific sites in which the participating clients received instruction. Consequently, site-level responses (rather than program level responses) were used in coding the instructional

Curriculum orientation, defined as the extent to which the program's adult education curriculum emphasizes individualized versus prestructured/fixed instructional designs as measured by a five-point scale from the Comprehensive Program Profile (see footnote 20 below).

Type of learning environment, defined as a class with a teacher only or with a teacher and an aide, computer-assisted lab or learning lab, or individual tutor or self-study with no instructor; derived from the Client Update Record.

Time of day that instruction is received, defined as morning, afternoon, or evening classes; derived from the Client Update Record.

Differentiating Enrollees who Never Attend Class from Those who Receive Some Instruction (Group 1 versus All Others).

Many adult education programs devote considerable effort to client outreach and recruitment activities. This section identifies client background and program characteristics that distinguish clients who begin instruction from those who enroll but never attend the first class. Identifying characteristics that distinguish between those who do and do not receive instructional service may help program managers make more effective use of their outreach and recruitment resources. It may also contribute further to understanding the extent to which the program is serving the members of its target population who are most in need.

Logistic regression was used to differentiate enrollees who did and did not receive instruction. Variables used in these analyses included client background characteristics, program background characteristics, program organization and structure, and program staffing characteristics.[21] As was previously discussed, we have identified those variables that increase or decrease the odds that a client will be in a particular attendance group by 50 percent or more. Technical details of the regression analyses summarized in this section are presented in appendix D. As discussed in the appendix, our statistical models were most accurate in distinguishing among clients enrolled in ABE, but the results for all three instructional components are reasonably sound.

Across instructional components, four independent variables were found to be substantial predictors of whether clients would or would not begin instruction: (1)

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philosophy and curriculum orientation for each client.

[21] Client background characteristics variables from Intake Form B were not used in these analyses because the comparisons involve persons who received no instruction. Use of support services was omitted for the same reason.

program size, (2) integration of services, (3) outreach effort, and (4) cost per client seat hour. New clients were *less likely to begin instruction* if they were enrolled in programs that were very large,[22] programs that devoted a relatively large amount of effort to outreach and recruitment activities, programs that had high costs per client seat hour, and programs that had little integration of services. Note that these four predictors of not receiving instruction are all program-related variables.

Most of the predictors of *receiving instruction* are also characteristics of programs rather than of clients. Below, predictors of instruction are summarized for each instructional group.

For new ESL clients, personal background characteristics are not predictive of receiving instruction, but new clients enrolling in ESL are more likely to receive instruction if they are enrolled in programs that--

- -- are small to large, rather than very large;
- -- are administered by school districts, rather than private voluntary organizations or technical institutes;
- -- are full-year, rather than part-year;
- -- have substantial integration of social services;
- -- have little emphasis on staff training in retention;
- -- have little emphasis on client outreach and recruitment activity; and
- -- have low costs per client seat hour.

New ABE clients who began receiving instruction were most likely to be over 45 years of age; to be non-Hispanic whites rather than Asian or Pacific Islanders; and to have a postsecondary certification or degree rather than no high school diploma. Program-related predictors of new ABE clients receiving some hours of instruction were enrollment in programs that--

- -- are small to large, rather than very large;
- -- are part-year, rather than full-year;
- -- have substantial integration of social services;
- -- emphasize staff training in retention;
- -- have little client outreach and recruitment activity; and
- -- have low costs per client seat hour.

New ASE clients who began receiving instruction were more likely to be Asian or Pacific Islande. , rather than non-Hispanic whites. Program-related predictors of instruction for new ASE clients included enrollment in programs that--

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[22] In the case of clients enrolled in ASE, the large program effect holds only for comparisons with medium-size programs.

-- are located in nonmetropolitan areas;
-- are medium-size;
-- are sponsored by private voluntary organizations, rather than school districts;
-- are sponsored by school districts rather than community colleges;
-- have substantial integration of social services;
-- have moderate emphasis on client outreach and recruitment;
-- have emphasized prestructured curricular designs rather than emphasized individualized curricula;
-- have professional commitment of the staff; and
-- have low costs per client seat hour.

It is interesting to note that in all three instructional components, a high score on our composite measure of social services integration is a substantial predictor of enrollees beginning to receive instruction. That measure is composed of indicators of the breadth and depth of coordination of services with other agencies in the community, the extent of support services available to enrollees directly from the program or another agency, the use of volunteers in the provision of support services, and the emphasis given in staff training to support services. It may be that programs with strong and varied relationships with other agencies in their service area are best able to convert enrollees into clients who actually receive instruction.

It is also interesting to note that low or moderate, rather than high, scores for the level of program effort devoted to outreach and recruitment activities is a predictor of enrollees actually beginning to receive instruction. This finding raises the possibility that too great an emphasis on outreach and recruitment may result in registering relatively large numbers of people who are not sufficiently motivated to show up for class.

Finally, the predictors of receiving or not receiving instruction lend some support to a tentative conclusion presented in the study's second interim report regarding the clients the program serves. For many years adult education programs have been criticized for not reaching the students who are the most in need. In the second report we concluded on the basis of information obtained at the time of client enrollment that the program is enrolling a fairly representative group of its target population. Earlier in this third report we reported that 16 percent of the clients who enroll in local programs do not receive instructional service, and thus there is a potential for bias with respect to the clients actually being served. The differences between clients who do and do not receive instruction are mostly due to program rather than personal characteristics however. Thus it can be concluded that the program is serving, as well as enrolling, a fairly representative group of the program's target population.

Analysis of Early Leavers (Group 2 versus Group 3)

The U.S. Department of Education specifies that only clients who have received 12 or more hours of instruction should be counted when states and local programs complete their federal adult education reports. The origin of the 12-hour requirement is not entirely clear, but it has been in effect since at least 1968. According to Paul Delker, director of the adult education program from 1967 to 1986[23], the cut-off point of 12-hours was set when the program began. Program officials at that time sought to report as participants only persons who could have been positively affected by the program, and 12 hours seemed to them to be a reasonable measure of minimal instruction.

Establishing an enrollment criterion that reflects meaningful attendance has intuitive appeal. However, where that cut-off point should be is not obvious, and 12 hours may not be the most appropriate place.

Under the present policy, the Department is in effect requiring that clients attend several class sessions before they can be counted as program participants. On average, adult education clients attend class sessions for 2 weeks before they accumulate 12 hours of instruction. To implement the current reporting policy, local programs must accurately record the number of hours of attendance for each client and then exclude those who do not reach the 12-hour threshold. This is certainly possible, and we have visited programs where we believe the counts are accurate, but we have also visited programs where the counts are not accurate. (Many programs that report total hours of instruction do not record the number of hours individual clients receive.) To the extent that some programs do not accurately implement the Department's 12-hour rule, a potentially significant amount of error is introduced into the federal reporting system.

Exhibit 3.2 shows the attendance rates, measured in terms of hours of instruction, for new clients who received at least 1 hour of instruction. The pattern shown is essentially the same as that displayed in terms of weeks in chapter 2 (exhibit 2.4). All three instructional components have a fairly smooth rate of attrition, and there is no clear shift in the pattern of attendance at or around the 12th hour of instruction.

Exhibit 3.3 provides a clearer view of the attendance rate curves. As the exhibit shows, the attendance curves change directions at various points during the initial 40 hours, with several of these shifts occurring prior to the 12-hour line. If the purpose of the 12-hour exclusion rule is to remove enrollees who are simply observing rather than participating in the instructional program, the data presented in the exhibit

[23] Personal communication, January 12, 1994.

would appear to support setting the criterion for counting participation at 2 or 3 hours of instruction rather then 12 (i.e., at the first discernable drop in enrollment).

To examine the empirical basis for setting 12 hours as a cut-off point from a different perspective, we compared the characteristics of clients who took 1 to 11 hours of instruction (group 2) with characteristics of clients in the first attendance quartile of their instructional component (group 3). Again, logistic regression analysis was used. The extent to which one can distinguish between clients in two analytic groups can be measured by a discrimination index. This summary statistic ranges from zero (chance discrimination) to 1.00 (perfectly reliable discrimination) and indicates how much (in percentage terms) our predictive capability is improved over what could be expected by chance alone. Overall, the ability of our statistical models to distinguish between the two groups in this set of analyses was in the low to moderate range. We can distinguished the groups with a moderate degree of accuracy among ESL clients ($\underline{d}$ = .41) but with considerable less accuracy for ABE ($\underline{d}$ = .30) and ASE ($\underline{d}$ = .26) clients. In essence, the predictors could not clearly distinguish between clients with 1 to 11 hours of attendance and those in the first quartile of attendance.

To examine this issue from a third perspective, we looked at our preliminary analyses of responses from the Telephone Follow-up Survey. We wanted to see whether clients who left the program during their initial 11 hours were more or less satisfied than those who stayed a longer time. Essentially, there was little difference in this regard. Of the clients who left the program after receiving 1 to 11 hours of instruction, 36 percent indicated they were satisfied, as compared with 39 percent of the clients who were in the lowest attendance quartile of all clients who received 12 hours of instruction or more.[24] In both groups, 6 percent indicated they had achieved their goals for enrolling at the time they left the program. The pattern across instructional components with respect to goal attainment was also the essentially the same for both groups. In the 1-to-11-hour attendance group, 2 percent of ESL, 3 percent of ABE, and 8 percent of ASE clients reported that they left after having achieved their goals, and for clients who were in the first attendance quartile the percentage reporting having achieved their personal goals were 1 percent for ESL, 7 percent for ABE, and 8 percent for ASE.

[24] By component, 23 percent of ESL, 30 percent of ABE, and 44 percent of ASE clients in the 1-to-11-hour attendance group indicated that they left satisfied; for clients in the first quartile this was the case for 23 percent of ESL, 39 percent of ABE, and 48 percent of ASE.

Exhibit 3.2
Persistence Rates (in Hours) for Clients Who Received 1 Hour or More of Instruction by Instructional Component

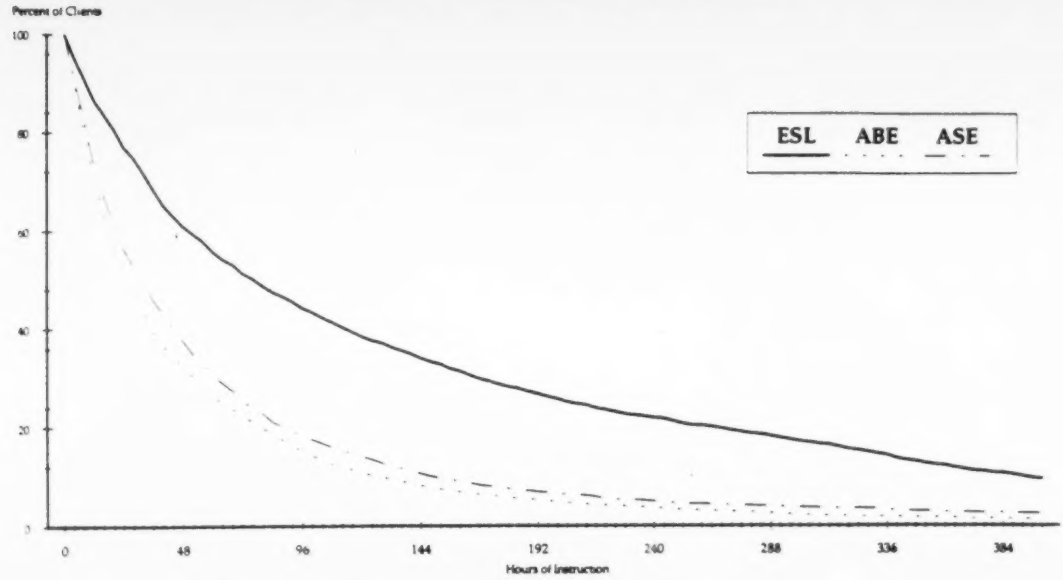
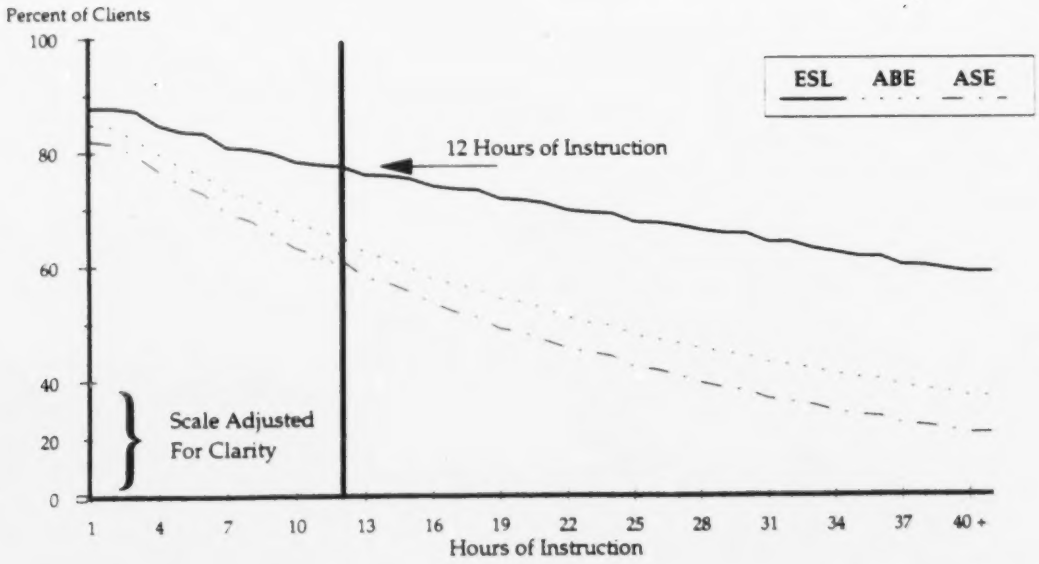


Exhibit 3.3
Persistence Rates (in Hours) for Clients Who Received 1 Hour or More of Instruction by Instructional Component (Compressed View)



Finally, we note that the preliminary analyses from the Telephone Follow-up Survey also suggests that by using 12 hours as a cut-off point, the program is excluding a sizable number of clients who have been successfully served. This finding is consistent with preliminary analyses of our learning gains data relating changes in achievement test scores to hours of attendance. In particular, the ASE learning gains indicate that achievement effects are obtained very quickly, and these effects are evident within 10 hours of instruction. If ASE students benefit from 10 or fewer instructional hours, it seems reasonable to count such clients as participants.

On the basis of the foregoing analysis, it may be worthwhile for federal policymakers to reconsider the need to require states and local programs to distinguish among clients on the basis of the existing 12-hour attendance rule. There appears to be no empirical basis for using 12 as opposed to some other number of hours. Establishing a cut-off point beyond the first instructional session (which usually involves 2 to 3 hours of instruction) places a potentially serious administrative burden on local programs which may also increase the amount of reporting error and systematically exclude clients whom the program has successfully served.

Predictors of Persistent Attendance (Groups 3-5 versus Group 6)

An important objective of adult education programs is to enable clients to receive instructional services long enough to demonstrate academic achievement or to achieve other personal goals. Although some clients achieve their instructional goals in a short period of time, it is generally assumed that, within unspecified limits, the longer the time that clients receive instruction, the more likely they are to achieve learning gains. Given this assumption, clients who are in the upper attendance quartile for their instructional component (94 hours or more for ABE, 85 hours or more for ASE, and 239 or more for ESL) are presumably more likely to be accomplishing their goals than those who are not.[25]

Logistic regression models were developed to identify predictors of persistent attendance for clients in each of the program's three instructional components. In these models, clients who took 12 hours or more of instruction in the first three attendance quartiles were compared with clients who were in the fourth quartile (the persisters). The technical results of these analyses are presented in appendix E. The discriminatory power of the statistical models was moderate to high, and their predictive accuracy was high.

The results of these analyses have important program implications. Essentially, as we found with the other groups, sustained attendance is predicted largely by factors related to program structure and instructional design rather than personal background

[25] The mandated testing policies for adult education programs in several states are premised on the assumption that most clients require at least 60 to 70 hours of instruction for learning gains to show.

or motivational factors. The strongest predictors across all three components are the use of support services, receipt of instruction during the day as opposed to evening, and clients' learning environment. These, and most of the other factors that were found to be substantial predictors of persistence, are factors over which local programs have some control.

Eleven variables are common to at least two of the instructional components, and five are common to all three. Our main conclusions about new client persistence are summarized as follows:

Personal and Motivational Characteristics

- Race/ethnicity is predictive of persistence in all three program components. Compared with non-Hispanic whites, Asian/Pacific Islanders are more likely to persist in ABE and ASE. Hispanics also are more likely to persist in ABE than non-Hispanic whites. In the ESL component, non-Hispanic blacks are more likely to persist than Hispanics, who are the majority of the ESL enrollees.

- For ABE, older clients are more likely to persist than younger clients, but age was not found to be a substantial predictor for clients enrolled in ESL or ASE. Specifically, clients over age 30 are more likely to persist in ABE programs.

- Gender, marital status, welfare status, prior education, and the enrollment motivation variables are not predictive of persistence.

Program and Instructional Characteristics

- A relatively prestructured or fixed (as opposed to a highly individualized) curriculum design is predictive of persistence for clients enrolled in ABE, but not for clients in ASE or ESL.

- A curricular emphasis on workplace or life skills is predictive of ASE persistence. Whether a program's curriculum is academically oriented or workplace/life skill-oriented does not predict persistence for clients enrolled in ABE or ESL.

- A client's learning environment is predictive of persistence, but the three types of learning environment studied are differentially related to persistence by instructional component. ESL clients participating in independent study are more likely to persist than are those whose instruction is only classroom-based. Participation in a computer-assisted or another form of learning lab (rather than only classroom-based) also is predictive for clients in ESL. Participation in a learning lab rather than only classroom-based instruction also is predictive of persistence for ASE clients, whereas independent study is not predictive of

persistence for clients in ASE. ABE clients participating in independent study are less likely to persist than are ABE clients whose instruction is provided only in a teacher-based classroom.

- Regardless of component, clients who attend classes only during the day are the most likely to persist, whereas those who attend only at night are the least likely to persist. About half of all clients (49 percent) attend only during the day and slightly over a third (37 percent) attend only at night.[26] Attending both day and night classes is also predictive of persistence for ASE and ESL clients, but the effect of day-only classes is stronger.

- ESL clients are more likely to persist if they are enrolled in large classes (31 students or more), ABE students are more likely to persist if they are in medium-to-large-size classes (more than 10 clients), and class size is not related to persistence for ASE. Thus, our data do not support the argument that small class sizes necessarily encourage client persistence.

- Having some full-time staff (at least one full-time administrator and one full-time member of the instructional staff) is an important predictor of persistence for clients enrolled in ESL and ASE.

- The relationship between our measure of the integration of services and client persistence is different for each instructional component. ABE clients are more likely to persist if they are in programs that have a high score on integration of services (i.e., coordination of program services with other agencies and the breadth of services offered to clients). Low integration is predictive of persistence in ASE and ESL, but the effect depends on the point of comparison (medium for ASE and high for ESL).

- Use of support services is a strong predictor for all components. Of the 25 percent of clients who use support services, most clients (60 percent) use only one type, with counseling (13 percent), financial assistance (6 percent), and transportation (6 percent) being the services most frequently used. Clients in programs which provided 5 types of services or more received, on average, 115 hours (and 19 weeks) of instruction, while those in programs that provided 4 types of support services or less received, on average, 60 hours (and 17 weeks) of instruction. This pattern was the same for ABE, ASE and ESL.

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[26] Some 48 percent of ABE, 42 percent of ASE, and 55 percent of ESL clients attend only during the day; 39 percent of ABE, 44 percent of ASE, and 30 percent of ESL clients attend only at night; and the remainder attend both day and evening classes.

- ASE clients enrolled in programs serving urban areas, especially large urban areas, are more likely to persist than are clients in rural programs. Otherwise, the urbanicity of a program's service area is not a strong predictor of persistence.

- Spending more per client seat hour is not positively related to persistence. Client cost per seat hour is not a predictor for ESL, and low cost per seat hour is predictive of persistence for clients in ASE. For ABE clients, average costs *are predictive of persistence.*

Summary and Conclusions

This chapter first sought to identify what distinguishes clients who enroll but do not receive adult education instruction from clients who receive services. On the basis of logistic regression analyses comparing clients who did and did not receive instruction after having enrolled for adult education services, we found the following:

- Newly enrolled clients are *less* likely to begin instruction if they are in a program that is very large, in a program that devotes a relatively large amount of effort to outreach and recruitment activities, or in a program whose services are not well coordinated with other community agencies. The odds that enrollees will begin are also substantially less if they are in a program that has a relatively high cost per client seat hour.

- Clients are *more* likely to start receiving services if they are in programs that score high on our measure of services integration, and, for ABE clients, if they are enrolled in programs that devote relatively more attention to providing staff training in client retention. It may be that a heavy emphasis on outreach and recruitment generates enrollment by unusually large numbers of people who are insufficiently motivated to show up for class. It also appears that programs that have strong and varied relationships with other agencies in their service area are most able to convert enrollees into clients who actually receive instruction.

The second focus of the chapter was on determining what, if any, important differences may exist between clients who begin instruction but leave before completing 12 hours and clients who continue somewhat longer. The U.S. Department of Education specifies that only clients who have received 12 or more hours of instruction should be counted when states and local programs complete their federal adult education reports. However, this requirement places an administrative burden on many local programs, and to the extent that programs do not accurately

implement the Department's 12-hour rule, a potentially significant amount of error is introduced into the federal reporting system.

To determine whether there is a compelling empirical basis for the 12-hour rule, we looked at the patterns of attendance for clients in each instructional component, the results of logistic regression analyses designed to identify differences between clients with 1 to 11 hours of instruction and clients in the first attendance quartile for their component, and at preliminary analyses of program impact measures from the Telephone Follow-up Survey and analyses of tested learning gains. Essentially, we found there to be no empirical basis for using 12 hours as a cut-off point for including clients in the federal reporting system, and that using it may result in systematically excluding clients whom the program has satisfactorily served.

Finally, the chapter identified predictors of persistent attendance. To identify these predictors we used logistic regression analyses to compare data on clients who took 12 hours or more of instruction in the first three attendance quartiles to data on clients who were in the fourth, or most persistent, quartile in their instructional group. Essentially, most of the factors that were found to be substantial predictors of persistence are factors over which local programs have some control. For clients who had already attended at least 12 hours of adult education instruction, the explanation for sustained attendance lies primarily in factors related to program structure and design, rather than personal background or motivational factors. The strongest predictors of persistence across all three components are as follows:

- The presence of support services that clients actually use,
- The receipt of instruction during the day as opposed to evening hours, and
- The type of learning environment in which the clients participate, but the type of environment that was most predictive was not the same for all three instructional components.

APPENDIX A
Study Objectives

STUDY OBJECTIVES

1. Client populations and patterns of participation. To construct empirically based models of client "flows" through each of the program's service components (ABE, ASE, and ESL), which will permit detailed estimates of client intake, participation, and attrition over time.

2. Factors contributing to client persistence. To identify client background and service-program variables that are positively related to client persistence (or negatively related to client attrition).

3. Reaching adults with basic literacy needs. To identify service-program characteristics that are positively or negatively related to attracting and holding adults with basic literacy needs.

4. Support and cooperation at the local level. To assess the extent to which federal and state funds for adult education are effectively supplemented by other resources at the local level.

5. Program capacity and demand for services. To develop and compare regional and national measures of unmet (or deferred) demand for adult education services and excess (or under-utilized) service capacity, and to assess the extent to which improved management of existing adult education resources might bring supply and demand into closer balance.

6. Participation rates of target populations. To develop estimates of the size and composition of target populations for each of the program's service components, and, by relating these estimates to data on program clients, to assess levels and rates of program participation for these target populations.

7. Learning gains. To develop estimates of average learning gains as related to hours of instruction or tutoring for each program component, and, by applying these estimates to data on participation, to assess aggregate learning outcomes generated by the program over a 1 year period.

8. Service costs. To develop estimates of average service costs as related to hours of instruction or tutoring for each program component, and, by relating these estimates to data on participation and learning gains, to assess the service costs associated with producing successful outcomes.

9. Employment outcomes. To evaluate the extent to which sustained program participation is significantly associated with favorable employment outcomes, using employment outcomes of early leavers as the standard of comparison.

10. Dissemination. To stimulate wider interest in a discussion of policy issues in adult education by means of timely dissemination of findings and interim reports, commissioned papers on selected issues, and a national conference at the conclusion of the study.

11. Independent research. To facilitate independent research on adult education by issuing unit-record data files for the national samples of service providers and new clients, along with provisions for linking these two files and high-quality user-oriented technical documentation.

12. Analytic agenda. To develop recommendations concerning future analytic agendas for adult education, with special reference to further uses of data from the 1992 National Survey of Adult Literacy and the 1990 census.

APPENDIX B
Data Collection Forms

OMB Approval No. 1875-0055
Expiration Date 8-31-93

Client Record Booklet 2

Client Name: _____

NATIONAL EVALUATION OF ADULT EDUCATION PROGRAMS

U.S. Department of Education
Washington, D.C.

Development Associates, Inc.
1730 North Lynn St.
Arlington, VA 22209-2060
Telephone: (703) 276-0677

For information call 1-800-348-7323

Please send completed form to:

Comprehensive Adult Student Assessment System (CASAS)
2725 Congress Street, Suite 1-M
San Diego, CA 92110
Telephone: (619) 298-4681

Reporting Period	Begin	Close	Transmittal
1	April 22, 1991	May 24, 1991	May 31, 1991
2	May 27, 1991	June 28, 1991	July 5, 1991
3	July 1, 1991	Aug. 2, 1991	Aug. 9, 1991
4	Aug. 5, 1991	Sept. 6, 1991	Sept. 13, 1991
5	Sept. 9, 1991	Oct. 11, 1991	Oct. 18, 1991
6	Oct. 14, 1991	Nov. 15, 1991	Nov. 22, 1991
7	Nov. 18, 1991	Dec. 20, 1991	Dec. 27, 1991
8	Dec. 23, 1991	Feb. 14, 1992	Feb. 21, 1992
9	Feb. 17, 1992	April 10, 1992	April 17, 1992
10	April 13, 1992	June 5, 1992	June 12, 1992
11	June 8, 1992	July 31, 1992	Aug. 7, 1992
12	Aug. 3, 1992	Sept. 25, 1992	Oct. 2, 1992
13	Sept. 28, 1992	Nov. 20, 1992	Nov. 27, 1992
14	Nov. 23, 1992	Jan. 15, 1993	Jan. 22, 1993
15	Jan. 18, 1993	March 12, 1993	March 19, 1993
16	March 15, 1993	May 7, 1993	May 14, 1993
17	May 10, 1993	July 2, 1993	July 9, 1993
18	July 5, 1993	Aug. 27, 1993	Sept. 3, 1993
19	Aug. 30, 1993	Oct. 22, 1993	Oct. 29, 1993

3/25/91

OMB Approval No. 1875-0055
Expiration Date 8-31-93

Client Update Record

Client Name: _____

NATIONAL EVALUATION OF ADULT EDUCATION PROGRAMS

U.S. Department of Education
Washington, D.C.

Please send completed form to:

Development Associates, Inc.
1730 North Lynn St.
Arlington, VA 22209-2009
Telephone: (703) 276-0877

Comprehensive Adult Student Assessment System (CASAS)
2725 Congress Street, Suite 1-M
San Diego, CA 92110
Telephone: (619) 298-4681

For information call 1-800-348-7323

Public reporting burden for this collection of information is estimated to vary from 1 to 2 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U. S. Department of Education, Information Management and Compliance Division, Washington, D.C. 20202-4651; and to the Office of Management and Budget, Paperwork Reduction Project 1875-NEW, Washington, D.C. 20503.

National Evaluation of Adult Education Programs' Client ID Number

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Reporting Period

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

1 Program Status at End of Reporting Period

- ○ Active: Received one or more hours of instruction (Go to 3)
- ○ Inactive: Received less than one hour of instruction (Go to 2) and stop

2 Reason for Not Receiving Instruction (Choose One)

- ○ Client no longer attends, reason unknown
- ○ Completed instructional program, not interested in going further
- ○ Completed highest level of instruction offered
- ○ Completed requirements of employer/other agency/other program
- ○ Forced to leave by personal circumstances - moved, changed job, health, family obligations, etc.
- ○ Did not complete program, but left expressing satisfaction
- ○ Did not complete program and left expressing dissatisfaction
- ○ Transferred to another site
- ○ Participation ended for other reasons

SERIAL NUMBER

03-25-91

BEST COPY AVAILABLE

National Evaluation of Adult Education Programs
Client Update Record

3 Current Program Placement (Mark All That Apply)

- ○ ESL Beginning
- ○ ESL Intermediate
- ○ ESL Advanced
- ○ ABE Beginning
- ○ ABE Intermediate
- ○ ASE
- ○ GED Preparation

4 Learning Environment(s) (Mark All That Apply)

- ○ Class with teacher only
- ○ Class with teacher and aide
- ○ Computer assisted lab
- ○ Learning lab
- ○ Individual tutor
- ○ Self-study, no instructor
- ○ Other

5 Time of Instructional Activity (Mark All That Apply)

- ○ Morning
- ○ Afternoon
- ○ Evening (After 5 p.m.)

6 Progress Test Administered During This Reporting Period (Choose One)

- ○ Yes
- ○ No

7 Support Services Used During This Period (Mark All That Apply)

- ○ Child care
- ○ Transportation
- ○ Health services
- ○ Counseling
- ○ Job search assistance
- ○ Translator services
- ○ Financial assistance
- ○ Case management
- ○ Other
- ○ None
- ○ Could not be determined

8 Approximate Class Size This Period

□□□ (0 1 2 3 4 5 6 7 8 9)

9 Days and Hours Scheduled*

Days Scheduled Per Week	Hours Scheduled Per Week
□ (0 1 2 3 4 5 6 7)	□□ (00 01 02 03 04 05 06 07 08 09)

* ○ Mark here if days or hours are unscheduled as in lab environment. Indicate above the number of days and hours facility is open.

10 WEEKLY CLIENT ATTENDANCE RECORD

Week ONE Beginning Month / Day / Year	Week TWO Beginning Month / Day / Year	Week THREE Beginning Month / Day / Year	Week FOUR Beginning Month / Day / Year
Total Days Attended (0 1 2 3 4 5 6 7)	Total Days Attended (0 1 2 3 4 5 6 7)	Total Days Attended (0 1 2 3 4 5 6 7)	Total Days Attended (0 1 2 3 4 5 6 7)
Total Hours Attended (00 01 02 03 04 05 06 07 08 09)	Total Hours Attended (00 01 02 03 04 05 06 07 08 09)	Total Hours Attended (00 01 02 03 04 05 06 07 08 09)	Total Hours Attended (00 01 02 03 04 05 06 07 08 09)
Number of scheduled days class was not held (1 2 3 4 5 6 7)	Number of scheduled days class was not held (1 2 3 4 5 6 7)	Number of scheduled days class was not held (1 2 3 4 5 6 7)	Number of scheduled days class was not held (1 2 3 4 5 6 7)

Week FIVE Beginning Month / Day / Year	Week SIX Beginning Month / Day / Year	Week SEVEN Beginning Month / Day / Year	Week EIGHT Beginning Month / Day / Year
Total Days Attended (0 1 2 3 4 5 6 7)	Total Days Attended (0 1 2 3 4 5 6 7)	Total Days Attended (0 1 2 3 4 5 6 7)	Total Days Attended (0 1 2 3 4 5 6 7)
Total Hours Attended (00 01 02 03 04 05 06 07 08 09)	Total Hours Attended (00 01 02 03 04 05 06 07 08 09)	Total Hours Attended (00 01 02 03 04 05 06 07 08 09)	Total Hours Attended (00 01 02 03 04 05 06 07 08 09)
Number of scheduled days class was not held (1 2 3 4 5 6 7)	Number of scheduled days class was not held (1 2 3 4 5 6 7)	Number of scheduled days class was not held (1 2 3 4 5 6 7)	Number of scheduled days class was not held (1 2 3 4 5 6 7)

APPENDIX C
Bias Control Issues for Analyses Reported in Third Interim Report

Bias Control Issues for Analyses Reported in Third Interim Report

This appendix summarizes the results of analyses of the degree to which the sample used in this study is likely to be representative of the population of adult education clients. The first issue addressed is whether clientlevel information obtained from Intake B records is flawed because of patterns of missing data. Then we briefly discuss the degree to which the sample we obtained from the telephone follow-up survey is representative.

Intake B records were not obtained for 21 percent of the new adult education clients participating in the national evaluation. The majority (55 percent) of these missing records relate to clients who enrolled in an adult education program but never began instruction. The rest began instruction, but program staff did not the Part-B Intake records for them.

Do the "missing Bs" constitute a problem? In essence, we conclude that because the purpose of the third interim report is intended to describe patterns of attendance and generate explanatory models of attendance in order to show how client and program characteristics are related to hours of instruction--our sample is sufficient (i.e., at least 13,000 cases with complete data on the variables of interest). However, problems related to missing data may arise in describing the characteristics of the population based on our sample, which will be need to be corrected for the study's final report.

The sampling weights used in the national evaluation's second interim report were adjusted to the sampling frame that was actually obtained so that the study's findings would be nationally representative. The same consideration is relevant here. That is, additional sampling weights should be developed to compensate for missing data if a smaller sample (e.g., composed only of cases with nonmissing data) produced substantially different descriptive estimates (compared with a larger sample in which a substantial portion of cases have missing data) or if the data loss were in some important way systematic and not random. Both of these considerations were examined.

Sample Biasing Effects

To examine the effect of missing Intake-B records we compared estimates of basic client characteristics (race, gender, etc.) for two groups. One group consisted of the approximately 16,000 cases for whom we had Intake-A and Update records, but for whom 21 percent of the Intake-B records were missing. The second group was composed of the subset of approximately 13,000 cases from the first group which had complete Intake-B records.

Using the adjusted sampling weights and the attendance database,[1] descriptive estimates for 10 traits measured by the Intake A and Universe Survey records were compared on the basis of whether cases were included or excluded from the analysis because of the presence or absence of Intake-B records. In addition to comparing differences in the estimates, we were interested in the extent to which an estimate depends on its sample; for this, we employed appropriate measures of association for categorical variables.[2]

The results of the comparative analysis of the two samples indicated that descriptive estimates of client and program characteristics are very similar, regardless of whether the sample includes clients with Intake-B records. These results also show that differences in the estimates depend very little on whether the sample includes clients with complete Intake-B records or is based on clients for whom Intake-B records are totally missing.[3]

The tables at the end of this appendix summarize the results of the comparative samples analysis (see exhibits C.2-C.11). Trait estimates are expressed as proportions with respect to clients within each sample, rounded to whole numbers. The "Total" row indicates the sample size in terms of the percent and number (unweighted) of clients. Correlation statistics appear below each table and summarize the extent to which estimates of a trait depend on the sample from which it was drawn. Becuase we are interested in the effect of dropping cases with missing Intake-B records, the most relevant comparison is between the full sample (which combines clients who have Intake-B records and clients for whom Intake-B is missing) and the smaller (has Intake-B records) sample (which excludes clients for whom Intake-B records are missing).

Predicting Missing Data

Logistic regression analysis was used to predict the presence of Intake-B data in order to establish more clearly whether the absence of such data was likely to result in systematic estimation bias. The resulting prediction model (which employed as predictors the 10 variables estimated in exhibits C.2-C.11) was able to correctly classify new clients in 86 percent of the cases as to whether their Intake-B records were present or missing in the attendance database.

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[1] At a minimum, this database includes clients who have Intake-A and Update records. For the latter, the number of hours of instruction received in adult education is the minimum datum.

[2] Nonparametric correlation statistics included the Phi Coefficient (for 2x2 tables) and the Contingency Coefficient (for larger tables).

[3] Estimates of a trait are fairly independent of the source of information (i.e., the HASB sample or the HASB-NOT sample). As is indicated by the low correlations, which range from zero to .16, with an average of .07. For example, with respect to gender there is a zero correlation between estimates of male-female and data source; the estimate for male is approximately 42 percent regardless of whether the sample includes clients with Intake-Bs or not.

The principal finding of this analysis was that there is a regional bias related to the reporting of Intake-B records. Specifically, adult education programs in the West are more likely to provide Intake-B records (compared with the other census regions), apart from the fact that the western programs account for the greatest number of client records in the study's database (because of the sampling design). From a descriptive standpoint, the West returned a higher percentage of Intake-B records than other regions of the country (see exhibit C.1).

Exhibit C.1
Percent of Intake-B Records Returned by Census Region

Census Region	Percent of Intake-Bs Reported	Number of Programs Reporting (clients with Intake-B records)
North Central	80 %	26 (3,813 B records)
Northeast	77	12 (1,510 B records)
South	75	43 (3,674 B records)
West	82	37 (4,240 B records)
Total	79 %	118 (13,239 B records)

Conclusions about the Need for Bias Adjustment

There is a slight bias in the study related to under-reporting of Intake-B records. This bias is most pronounced for the Western census region (which is most likely to report Intake-B data), and would tend to inflate descriptive estimates of client characteristics related to Intake B variables for those residing in the West. An adjustment (e.g., weighting or imputing of missing Intake-B records) is therefore warranted in order to ensure the generalizability of descriptive estimates with respect to Intake-B variables.

An adjustment for missing Intake-B data will be carried out and implemented for the final report of the national evaluation but no adjustments are needed for the analyses in this report. This decision takes into consideration the relative emphases of the third interim report and the final report. In this report, we are primarily concerned with establishing relationships about attendance patterns. While in the final report, these patterns will also need to be described with greater precision than must be done here.

Exhibit C.2
Estimates of Program Size as a Function of Sample

Program Size	HASB-NOT Sample	HASB Sample	Combined Sample
Small	12 %	8 %	8 %
Medium	77	69	71
Large	12	24	21
Total	20 % (N = 3,521)	80 % (N = 13,237)	100 % (N = 16,758)

r = .12

Exhibit C.3
Estimates of Client Program Participation by Census Region as a Function of Sample

Census Region	HASB-NOT Sample	HASB Sample	Combined Sample
Northcentral	24 %	24 %	24 %
Northeast	15	12	13
South	36	27	29
West	24	37	35
Total	20 % (N = 3,521)	80 % (N = 13,237)	100 % (N = 16,758)

r = .12

Exhibit C.4
Estimates of Client Community Type as a Function of Sample

Type of Community	HASB-NOT Sample	HASB Sample	Combined Sample
Large City Major Metro	7 %	18 %	16 %
Balance Major Metro Area	26	24	24
Small Metro	23	30	29
Non-Metro	44	28	31
Total	21 % (N = 3,521)	79 % (N = 13,237)	100 % (N = 16,758)

r = .16

Exhibit C.5
Estimates of Client Age as a Function of Sample

Client Age	HASB-NOT Sample	HASB Sample	Combined Sample
16-21 Years	39 %	35 %	36 %
22-30 Years	31	32	32
31-45 Years	23	24	24
46 & Older	7	9	9
Total	19 % (N = 2,787)	81 % (N = 12,253)	100 % (N = 15,040)

r = .04

Exhibit C.6
Estimates of Program Placement as a Function of Sample

Program Placement	HASB-NOT Sample	HASB Sample	Combined Sample
ESL	28 %	39 %	37 %
ABE	31	24	25
ASE	41	37	38
Total	20 % (N = 3,098)	80 % (N = 12,792)	100 % (N = 15,890)

r = .09

Exhibit C.7
Estimates of Client Gender as a Function of Sample

Gender	HASB-NOT Sample	HASB Sample	Combined Sample
Male	41 %	42 %	42 %
Female	59	58	58
Total	21 % (3,517)	79 % (N = 13,212)	100 % (N = 16,736)

r = .00

Exhibit C.8
Estimates of Educational Attainment (Years of School Completed)
as a Function of Sample

Years of School	HASB-NOT Sample	HASB Sample	Combined Sample
0-8 Years	23 %	23 %	23 %
9 Years	18	17	17
10 Years	22	18	19
11 Yrs	18	18	18
12 or More	19	24	23
Total	19 % (N = 2,994)	81 % (N = 12,972)	100 % (N = 15,966)

r = .05

Exhibit C.9
Estimates of Educational Attainment (Highest Degree Obtained)
as a Function of Sample

Highest Degree	HASB-NOT Sample	HASB Sample	Combined Sample
None	81 %	71 %	73 %
High School	13	19	18
Some College[4]	2	5	4
College	4	6	5
Total	18 % (N = 2,630)	82 % (N = 11,641)	100 % (N = 14,271)

r = .09

[4] Associate's Degree or Technical Certification

Exhibit C.10
Estimates of Client Marital Status as a Function of Sample

Marital Status	HASB-NOT Sample	HASB Sample	Combined Sample
Married	37 %	35 %	35 %
Widowed	1	2	2
Divorced	8	7	7
Separated	4	5	5
Never Married	51	51	51
Total	15 % (N = 2,297)	85 % (N = 12,851)	100 % (N = 15,148)

r = .02

Exhibit C.11
Estimates of Client Race as a Function of Sample

Client Race	HASB-NOT Sample	HASB Sample	Combined Sample
Native American	1 %	2 %	2 %
Asian	9	10	10
Black	15	13	13
Hispanic	27	31	30
White	48	44	45
Total	20 % (N = 3,268)	80 % (N = 13,101)	100 % (N = 16,369)

r = .05

The Telephone Survey

An examination of the sample of clients included in the telephone survey revealed that one could predict with considerable accuracy whether an interview would be attempted, and, given an attempt, whether contact would be made. The fact that there is a high degree of predictability is indicative of a nonrandom system, and indicates there is a reason for concern that tabulation of responses to the telephone survey will yield biased estimates of responses that would be given by the entire population. Hence, for the final report, if a similar pattern exists when the entire telephone interview sample is examined, corrective measures will be taken. This will likely be a reweight of the sample to correct for the nonrandom loss of cases.

APPENDIX D
Logistic Regression -- Summary Tables

Logistic Regression -- Summary Tables

Logistic regression was used to develop explanatory models for clients who enrolled in the ESL, ABE, and ASE program components but who dropped out before receiving any instruction. These models compare clients with zero hours of instruction (the No-Shows) to those who received instruction. Exhibit D.1 summarizes the predictive efficacy of the three No Service Models based on two indicators: the discrimination index and predictive accuracy.

The extent to which the models distinguish between No-Shows (new clients with zero hours of instruction) and new clients who receive instruction is measured by the discrimination index. This summary statistic can range from zero (chance level discrimination) to 1.00 (perfectly reliable discrimination) and indicates how much (in percentage terms) our predictive capability is improved using the models over what could be expected by chance alone. The No Service Models vary widely in their discriminatory power. No-Shows can be discriminated most accurately among ABE students (d = .68) and least accurately among ESL students (d = .29); ASE No-Shows can be differentiated with a moderate degree of accuracy (d = .47).

The accuracy of the No Service Models in predicting No-Shows is measured by the proportion of cases predicted by the model to be No-Shows who were in fact observed to have zero hours of instruction. Similar to the discrimination index, the predictive accuracy of the No Service Models varied widely. The ABE model provided the highest accuracy in predicting No-Shows (78% correct predictions), the ASE model was moderately accurate in its predictions (60% correct), and the ESL model was least accurate in predicting new clients with zero hours of instruction (37% correct predictions).

Exhibit D.1
Predictive Efficacy of No Service Models

Placement Level	Predictive Accuracy	Discrimination Index	Unweighted Sample Size
ESL	.37	.29	N = 3715
ABE	.78	.68	N = 3433
ASE	.60	.47	N = 5016

The remaining exhibits in Appendix D are divided into two sets, each of which summarizes the logistic regression results by placement level with respect to a class of predictors; these consist of a subset of personal and programmatic characteristics pertinent to new clients with zero hours of instruction. In the ESL model, the independent variable measuring type of community in which a project is located was deleted because it is highly correlated with other project-related characteristics such as

program size and cost. In addition, the single best measure of educational background was used as a predictor of No-Show group membership because these two variables tend to be substantially correlated with each other. The choice of the educational background predictor was based on which of the two indicators correlated the highest with the outcome of interest (i.e., membership in the No-Show group); this proved to be the highest degree achieved by new clients prior to enrolling in adult education.

The logit regression models which follow summarize the contribution of each independent variable to the prediction of being a No-Show. Each table displays the regression coefficient, the standard error of the regression coefficient, whether the coefficient is statistically significant or not (NS), and the odds ratio (the antilog of the coefficient). The odds ratio provides the easiest measure of the contribution of each independent variable to the prediction of being a No-Show, controlling for all other predictors in the model. An odds ratio close to 1.00 indicates that a predictor has little or no influence on being a No-Show, and the regression coefficient should be approximately zero for such a predictor. As the odds ratio increases from 1, the chances of being a No-Show are increased by the characteristic in question; similarly, odds ratios less than 1 indicate that the characteristic decreases the likelihood of being a No-Show.

The amount by which the odds of being a No-Show are **increased** by a characteristic can be seen directly in odds ratios greater than one. In Exhibit D2.1, for example, the odds ratio for Asians is 1.39; this means that Asians are 39% more likely to be No-Shows in the ESL Program compared to Hispanics. The amount by which the odds of being a No-Show are **decreased** by a characteristic requires an elementary calculation, as follows: for odds ratios less than one, simply subtract the odds ratio in question from one. Using the data in Exhibit D2.1, it can be estimated that married ESL clients are 17% less likely to be No-Shows compared to those with some prior history of marriage (.83 - 1 = -.17)

Note that for predictors originally measured on a nominal scale (e.g., categories such as Race), a reference group is used and this is always the dominant subgroup relative to ESL, ABE, or ASE placement. For statistical reasons, the reference group must be omitted from the analysis in each model, but its effect on being a No-Show can be calculated as the reciprocal of the odds ratio for each of the target variables in its group. For example, Hispanic is the reference group for Race in the ESL model whereas White is the reference group for Race in the ABE and ASE models. In Exhibit D2.1, it can be seen that Hispanics are 28% less likely than Asians to drop out before the first ESL class because the odds of being a No-Show for Hispanics relative to Asians is .72 (i.e., 1/1.39 = .72; .72 - 1.00 = -.28).

It should be kept in mind that statistical significance does not necessarily indicate a meaningful relationship, particularly when relatively large samples are used (as in the present case). Therefore, we have used a double asterisk to indicate predictors estimated to increase the odds of membership in the No-Show group by 50% or more. Alternatively, a single asterisk identifies predictors which are estimated to reduce the odds of receiving no instruction by 50% or more. The designation of a predictor as

substantial also takes the standard error of estimate into account, computed to the 95% confidence level (or plus and minus two standard errors).

Exhibit D2.1
ESL No-Show as Predicted by Client Personal Characteristics

	Substantial Reduction in Likelihood of No Instruction * Substantial Increase in Likelihood of No Instruction **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of Zero Hours of Instruction
Age				
16-21 Years Old	-.22	.02	Significant	.81
31-45 Years Old	-.03	.02	NS	.97
46 and Older (vs. 22-30 Yrs Old)	.04	.02	NS	1.04
Male (vs female)	.03	.01	NS	1.03
Race/Ethnicity				
Am. Indian	.30	.13	NS	1.35
Asian/Pac. Isl.	.33	.02	Significant	1.39
Black nonHisp	.06	.04	NS	1.06
White nonHisp (vs Hispanic)	.04	.03	NS	1.04
Education				
HS Graduate	-.01	.02	NS	.99
Post Sec Grad (vs No Degree)	.09	.02	Significant	1.09
Married (vs Otherwise)	-.19	.01	Significant	.83

Exhibit D2.2
ABE No-Show as Predicted by Client Personal Characteristics

	Substantial Reduction in Likelihood of No Instruction * Substantial Increase in Likelihood of No Instruction **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of Zero Hours of Instruction
Age				
22-30 Years Old	.08	.02	Significant	1.08
31-45 Years Old	-.06	.02	Significant	.94
46 and Older	-.46	.03	Significant	.63*
(vs. 16-21 Years Old)				
Male	-.07	.02	Significant	.93
(vs female)				
Race/Ethnicity				
Am. Indian	.25	.06	Significant	1.28
Asian/Pac. Isl.	.58	.05	Significant	1.79**
Black nonHisp	-.05	.02	NS	.95
Hispanic	.05	.03	NS	1.05
(vs White nonHisp)				
Education				
HS Grad	.27	.02	Significant	1.31
Post Sec Grad	-2.23	.13	Significant	.11*
(vs No Degree)				
Married	.01	.02	NS	1.01
(vs Otherwise)				

Exhibit D2.3
ASE No-Show as Predicted by Client Personal Characteristics

	Substantial Reduction in Likelihood of No Instruction * Substantial Increase in Likelihood of No Instruction **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of Zero Hours of Instruction
Age				
22-30 Years Old	-.03	.01	NS	.97
31-45 Years Old	-.16	.02	Significant	.85
46 and Older	-.32	.03	Significant	.72
(vs. 16-21 Years Old)				
Male	.16	.01	Significant	1.18
(vs female)				
Race/Ethnicity				
Am. Indian	-.23	.04	Significant	.80
Asian/Pac. Isl.	-.48	.05	Significant	.62*
Black nonHisp	-.18	.02	Significant	.83
Hispanic	.34	.02	Significant	.71
(vs White nonHisp)				
Education				
HS Graduate	-.26	.02	Significant	.77
Post Sec Degree	-.15	.03	Significant	.86
(vs No Degree)				
Married	.02	.01	NS	1.02
(vs Otherwise)				

Exhibit D3.1
ESL No-Show as Predicted by Program Structural Characteristics

	Substantial Reduction in Likelihood of No Instruction * Substantial Increase in Likelihood of No Instruction **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of Zero Hours of Instruction
Size				
Small	-2.24	.05	Significant	.11*
Medium	-.49	.03	Significant	.61*
Large (vs Very Large)	-1.19	.03	Significant	.31*
Sponsorship				
College	.04	.02	NS	1.04
PVO/TI (vs LEAs)	.59	.05	Significant	1.80**
Design	.10	.01	Significant	1.10
Philosophy	-.32	.01	Significant	.72
Full Year (vs Part Year)	-.91	.02	Significant	.40*
Professional Committment (vs Otherwise)	.07	.03	Significant	1.08
Full Time Staff (vs Part-Time)	-.31	.02	Significant	.74
Retention Training (vs Otherwise)	.58	.03	Significant	1.78**
Services Integration				
Low	.79	.03	Significant	2.21**
Medium (vs High)	.55	.03	Significant	1.73**
Outreach				
Low	-.58	.02	Significant	.56*
High (vs Medium)	.45	.02	Significant	1.57**
Cost				
Low	-.38	.02	Significant	.69*
High (vs Medium)	1.64	.02	Significant	5.16**

Exhibit D3.2
ABE No-Show as Predicted by Program Structural Characteristics

	Substantial Reduction in Likelihood of No Instruction * Substantial Increase in Likelihood of No Instruction **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of Zero Hours of Instruction
Size				
Small	-.68	.03	Significant	.51*
Medium	-1.83	.03	Significant	.16*
Very Large	.84	.04	Significant	2.31**
(vs Large)				
Sponsorship				
College	.18	.03	Significant	1.20
PVO/TI	.15	.04	Significant	1.16
(vs LEAs)				
Design	-.32	.01	Significant	.73
Philosophy	-.02	.01	NS	.98
Full Year (vs Part Year)	.89	.02	Significant	2.43**
Professional Committment (vs Otherwise)	-.18	.03	Significant	.83
Full Time Staff (vs Part-Time)	.13	.03	Significant	1.13
Retention Training (vs Otherwise)	-.98	.03	Significant	.38*
Services Integration				
Low	1.27	.03	Significant	3.56**
Medium	.42	.02	Significant	1.52**
(vs High)				
Outreach				
Low	-.79	.03	Significant	.45*
High	1.28	.02	Significant	3.60**
(vs Medium)				
Cost				
Low	-2.78	.13	Significant	.06*
High	2.45	.03	Significant	11.56**
(vs Medium)				
Type of Community				
City	-.70	.07	Significant	.50*
Large Metro	.72	.04	Significant	2.05**
Small Metro	.62	.03	Significant	1.86**
(vs Nonmetro)				

Exhibit D3.3
ASE No-Show as Predicted by Program Structural Characteristics

	Substantial Reduction in Likelihood of No Instruction * Substantial Increase in Likelihood of No Instruction **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of Zero Hours of Instruction
Size				
Small	-.13	.02	Significant	.88
Medium	-1.19	.02	Significant	.31*
Very Large	-.24	.02	Significant	.78
(vs Large)				
Sponsorship				
College	1.53	.03	Significant	4.62**
PVO/TI	-.47	.03	Significant	.62*
(vs LEA)				
Design	-.47	.01	Significant	.62*
Philosophy	.05	.01	Significant	1.06
Full Year (vs Part Year)	.35	.02	Significant	1.41
Professional Committment (vs Otherwise)	-.48	.02	Significant	.62*
Full Time Staff (vs Part-Time)	-.03	.02	NS	.97
Retention Training (vs Otherwise)	-.34	.02	Significant	.71
Services Integration				
Medium	.13	.02	Significant	1.14
High	-.58	.02	Significant	.56*
(vs Low)				
Outreach				
Low	.02	.02	NS	1.02
High	1.02	.01	Significant	2.78**
(vs Medium)				
Cost				
Low	-1.97	.05	Significant	.14*
High	1.60	.02	Significant	4.96**
(vs Medium)				
Type of Community				
City	2.01	.05	Significant	7.49**
Large Metro	1.52	.03	Significant	4.57**
Small Metro	1.31	.02	Significant	3.72**
(vs Nonmetro)				

APPENDIX E

Logistic Regression Summary Tables
Persistence Models

Logistic Regression Summary Tables
Persistence Models

Logistic regression was used to develop explanatory models of sustained persistence for clients in the ESL, ABE, and ASE instructional components. These models included only clients with 12 or more hours of instruction. Exhibit E1.0 summarizes the predictive efficacy of the three models based on two indicators: the discrimination index and predictive accuracy.

The extent to which the models distinguish between persisters (fourth quartile members) and nonpersisters (members of quartiles 1-3) is measured by the discrimination index. This summary statistic can range from zero (chance level discrimination) to 1.00 (perfectly reliable discrimination) and indicates how much (in percentage terms) our predictive capability is improved using the models over what could be expected by chance alone. The discriminatory power of the models is moderate. Persisters can be distinguished from nonpersisters most accurately among ESL students (d = .48) and least accurately among ASE students (d = .41).

The accuracy of the models in predicting persistence is measured by the proportion of cases predicted by the model to be persisters who were in fact observed to be members of the fourth attendance quartile. The Persistence Models ranged from 62-66 percent in correctly predicting persisters with the ESL and ABE models being somewhat more accurate than the ASE model.

Exhibit E1.0
Predictive Efficacy of Persistence Models

Placement Level	Predictive Accuracy	Discrimination Index	Unweighted Sample Size
ESL	.65	.48	N = 2197
ABE	.66	.45	N = 1974
ASE	.62	.41	N = 2435

The remaining exhibits in Appendix E are divided into four sets, each of which summarizes the logistic regression results by placement level with respect to a class of independent variables (personal, motivational, programmatic, and instructional characteristics). In the ESL model, the independent variable measuring type of community in which a project is located was deleted because it is highly correlated with other project-related characteristics such as program size and cost. In addition, the single best measure of educational background was used as a predictor of persistence in each model (either years of school completed or highest degree

achieved) because these two variables tend to be substantially correlated with each other. The choice of the educational background predictor was based on which of the two indicators correlated the highest with the outcome of interest (i.e., membership in the persister group).

The logit regression models which follow summarize the contribution of each independent variable to the prediction of being a persister. Each table displays the regression coefficient, the standard error of the regression coefficient, whether the coefficient is statistically significant or not (NS), and the odds ratio (the antilog of the coefficient). The odds ratio provides the easiest measure of the contribution of each independent variable to the prediction of persistence, controlling for all other predictors in the model. An odds ratio close to 1.00 indicates that a predictor has little or no influence on persistence, and the regression coefficient should be approximately zero for such a predictor. As the odds ratio increases from 1, the chances of being a persister are increased by the characteristic in question; similarly, odds ratios less than 1 indicate that the characteristic decreases the likelihood of being a persister.

The amount by which the odds of being a persister are **increased** by a characteristic can be seen directly in odds ratios greater than one. In Exhibit E2.1, for example, the odds ratio for Asians is 1.33; this means that Asians are 33% more likely to be persisters in the ESL Program than are Hispanics. The amount by which the odds of being a persister are **decreased** by a characteristic requires an elementary calculation, as follows: for odds ratios less than one, simply subtract the odds ratio in question from one. Using the data in Exhibit E2.1, it can be estimated that White ESL clients are 22% less likely than Hispanics to be persisters (.78 - 1 = -.22).

Note that for predictors originally measured on a nominal scale (e.g., categories such as Race), a reference group is used and this is always the dominant subgroup relative to ESL, ABE, or ASE placement. For statistical reasons, the reference group must be omitted from the analysis in each model, but its effect on persistence can be calculated as the reciprocal of the odds ratio for each of the target variables in its group. For example, Hispanic is the reference group for Race in the ESL model whereas White is the reference group for Race in the ABE and ASE models. In Exhibit E2.1, it can be seen that Hispanics are 25% less likely to be persisters in the ESL program compared to Asians because the odds of persisting for Hispanics relative to Asians is .75 (i.e., 1/1.33 = .75; .75 - 1.00 = -.25).

It should be kept in mind that statistical significance does not necessarily indicate a meaningful relationship, particularly when relatively large samples are used (as in the present case). Therefore, we have used a double asterisk to indicate substantial predictors of persistence, defined as increasing the odds of fourth quartile membership by 50% or more; this is an odds ratio of 1.5 or greater. Conversely, a single asterisk identifies substantial predictors of nonpersistence; this is an odds ratio of .67 or lower (computed as the reciprocal of an odds ratio of 1.5). The designation of a predictor as substantial also takes the standard error of estimate into account, computed to the 95% confidence level (or plus and minus two standard errors).

Exhibit E2.1
ESL Persistence as Predicted by Client Personal Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Age				
16-21 Years Old	-.05	.02	Significant	.95
31-45 Years Old	.01	.02	NS	1.01
46 and Older	.33	.02	Significant	1.39
(vs 22-30 Years Old)				
Male	-.02	.01	NS	.98
(vs Female)				
Race/Ethnicity				
American Indian[1]	-7.22	1.51	Significant	--
Asian/Pacific Islander	.29	.02	Significant	1.33
Black non-Hispanic	.35	.04	Significant	1.42**
White non-Hispanic	-.25	.03	Significant	.78
(vs Hispanic)				
Education				
High School Graduate	-.09	.01	Significant	.91
Post Secondary Grad	-.30	.02	Significant	.74
(vs No Degree)				
Married	-.12	.01	Significant	.88
(vs Otherwise)				
Resided Last 5 yrs Same County	-.20	.02	Significant	.82
(vs Otherwise)				
Employed	-.20	.01	Significant	.82
(vs Otherwise)				
Welfare Recipient	.24	.02	Significant	1.27
(vs Otherwise)				

[1] The large SE term suggests that the regression coefficient for ESL American Indian clients is highly unstable and unreliable as a predictor of persistence, probably because of sample size problems. Inspection of the unweighted cell frequencies confirms this suspicion: a sample size of 22 American Indians with a frequency of zero for membership in the Persister group.

Exhibit E2.2
ABE Persistence as Predicted by Client Personal Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Age				
22-30 Years Old	.16	.02	Significant	1.17
31-45 Years Old	.37	.02	Significant	1.45**
46 and Older	1.19	.03	Significant	3.29**
(vs 16-21 Years Old)				
Male (vs Female)	-.15	.02	Significant	.86
Race/Ethnicity				
American Indian	-.73	.06	Significant	.48*
Asian/Pacific Islander	.49	.06	Significant	1.64**
Black non-Hispanic	.21	.02	Significant	1.23
Hispanic	.56	.03	Significant	1.75**
(vs White non-Hispanic)				
Education				
Years School Completed	-.14	.01	Significant	.88
Married (vs Otherwise)	-.22	.02	Significant	.80
Resided Last 5 years Same County (vs Otherwise)	.37	.02	Significant	1.44**
Employed (vs Otherwise)	-.03	.02	NS	.97
Welfare Recipient (vs Otherwise)	.13	.02	Significant	1.13

Exhibit E2.3
ASE Persistence as Predicted by Client Personal Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Age				
22-30 Years Old	-.24	.02	Significant	.79
31-45 Years Old	-.04	.02	NS	.96
46 and Older	-.09	.03	Significant	.92
(vs 16-21 Years Old)				
Male	-.10	.01	Significant	.91
(vs Female)				
Race/Ethnicity				
American Indian	-.43	.04	Significant	.65*
Asian/Pacific Islander	.94	.04	Significant	2.55**
Black non-Hispanic	-.12	.02	Significant	.89
Hispanic	-.43	.03	Significant	.65*
(vs White non-Hispanic)				
Education				
High School Graduate	-.09	.02	Significant	.92
Post Secondary Grad	-.01	.04	NS	.99
(vs No Degree)				
Married	.22	.02	Significant	1.24
(vs Otherwise)				
Resided Last 5 years Same County	.00	.02	NS	1.00
(vs Otherwise)				
Employed	.06	.01	Significant	1.06
(vs Otherwise)				
Welfare Recipient	.16	.02	Significant	1.18
(vs Otherwise)				

Exhibit E3.1
ESL Persistence as Predicted by Client Motivational Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Required (vs Otherwise)	-.10	.02	Significant	.91
Self-Concept	-.05	.02	NS	.95
Literacy	.28	.03	Significant	1.32
Basic Skills	.08	.01	Significant	1.08
Employability	.17	.02	Significant	.84

Exhibit E3.2
ABE Persistence as Predicted by Client Motivational Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Required (vs Otherwise)	.32	.02	Significant	1.38
Self-Concept	.13	.02	Significant	1.14
Literacy	.29	.02	Significant	1.33
Basic Skills	-.10	.02	Significant	.90
Employability	-.14	.02	Significant	.87

Exhibit E3.3
ASE Persistence as Predicted by Client Motivational Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Required (vs Otherwise)	.32	.02	Significant	1.38
Self-Concept	-.22	.02	Significant	.80
Literacy	.23	.01	Significant	1.26
Basic Skills	.15	.02	Significant	1.17
Employability	.01	.02	NS	1.01

Exhibit E4.1
ESL Persistence as Predicted by Program Structural Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Size				
Small	-.72	.10	Significant	.49*
Medium[2]	-5.63	.59	Significant	--
Large	.11	.03	Significant	1.12
(vs Very Large)				
Sponsorship				
College	.44	.03	Significant	1.55**
PVO/TI	.04	.11	NS	1.04
(vs LEAs)				
Design	-.12	.01	Significant	.89
Philosophy	-.11	.02	Significant	.90
Support Services (vs Otherwise)	.87	.02	Significant	2.39**
Professional Committment (vs Otherwise)	.68	.04	Significant	1.96**
Full Time Staff (vs Part-Time)	.89	.03	Significant	2.44**
Retention Training (vs Otherwise)	-.09	.03	Significant	.91
Services Integration				
Low	.45	.04	Significant	1.57**
Medium	.12	.03	Significant	1.13
(vs High)				
Outreach				
Low	-.16	.03	Significant	.86
High	-.08	.03	Significant	.93
(vs Medium)				
Cost				
Low	.22	.02	Significant	1.25
High	-.26	.04	Significant	.77
(vs Medium)				
Full Year (vs Part Year)	-.29	.04	Significant	.75

[2] The large SE term suggests an unstable predictor, probably due to samplle size problems. Inspection of the unweighted cell frequencies confirms this suspicion: a samplle of 239 ESL clients enrolled in medium-sized projects with a frequency of zero for membership in the Persister group.

Exhibit E4.2
ABE Persistence as Predicted by Program Structural Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Size				
Small	.43	.04	Significant	1.54**
Medium	-.13	.03	Significant	.88
Very Large (vs Large)	.18	.04	Significant	1.19
Sponsorship				
College	-.01	.02	NS	.99
PVO/TI (vs LEAs)	.44	.04	Significant	1.56**
Design	.39	.01	Significant	1 .47**
Philosophy	-.34	.01	Significant	.71
Support Services (vs Otherwise)	.71	.02	Significant	2.03**
Professional Committment (vs Otherwise)	.20	.02	Significant	1.22
Full Time Staff (vs Part-Time)	.33	.02	Significant	1.39
Retention Training (vs Otherwise)	.26	.02	Significant	1.30
Services Integration				
Low				
Medium	-.49	.03	Significant	.61*
(vs High)	.18	.02	Significant	1.19
Outreach				
Low	.22	.02	Significant	1.25
High (vs Medium)	.25	.02	Significant	1.29
Cost				
Low	.13	.03	Significant	1.14
High (vs Medium)	-.59	.02	Significant	.56*

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Full Year (vs Part Year)	-.18	.02	Significant	.83
Community Type				
City	-.24	.05	Significant	.79
Large Metro	-.11	.03	Significant	.89
Small Metro (vs Nonmetro)	-.16	.03	Significant	.86

Exhibit E4.3
ASE Persistence as Predicted by Program Structural Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Size				
Small	-.07	.03	Significant	.93
Medium	-.81	.03	Significant	.44*
Very Large (vs Large)	-.56	.02	Significant	.57*
Sponsorship				
College	.27	.03	Significant	1.31
PVO/TI (vs LEAs)	.19	.03	Significant	1.21
Design	.19	.01	Significant	1.21
Philosophy	-.44	.01	Significant	.64*
Support Services (vs Otherwise)	.63	.01	Significant	1.88**
Professional Committment (vs Otherwise)	-.25	.02	Significant	.78
Full Time Staff (vs Part-Time)	.61	.02	Significant	1.85**
Retention Training (vs Otherwise)	-.09	.02	Significant	.91
Services Integration				
Medium	-.36	.02	Significant	.70*
High (vs Low)	.14	.02	Significant	1.15
Outreach				
Low	-.13	.02	Significant	.88
High (vs Medium)	-.23	.02	Significant	.80
Cost				
Low	.58	.03	Significant	1.79**
High (vs Medium)	-.30	.02	Significant	.74

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Full Year (vs Part Year)	-.29	.02	Significant	.75
Community Type				
City	.74	.05	Significant	2.09**
Large Metro	1.04	.03	Significant	2.84**
Small Metro	.15	.02	Significant	1.16
(vs Nonmetro)				

Exhibit E5.1
ESL Persistence as Predicted by Program Instructional Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Time of Instruction				
Night Only	-1.23	.02	Significant	.29*
Day & Night	.61	.01	Significant	1.84**
(vs Day Only)				
Learning Environment				
Lab	1.13	.01	Significant	3.11**
Independent Study	.96	.04	Significant	2.60**
(vs Teacher & Aide)				
Class Size				
1-10 Students	-2.10	.07	Significant	.12*
11-20 Students	-1.76	.03	Significant	.17*
21-30 Students	-1.03	.02	Significant	.36*
(vs 31 or More Students)				

Exhibit E5.2
ABE Persistence as Predicted by Program Instructional Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Time of Instruction				
Night Only	-1.12	.02	Significant	.33*
Day & Night	-.21	.02	Significant	.81
(vs Day Only)				
Learning Environment				
Lab	-.05	.02	Significant	.95
Independent Study	-.44	.03	Significant	.64*
(vs Teacher & Aide)				
Class Size				
1-10 Students	-.91	.02	Significant	.40*
21-30 Students	-.14	.02	Significant	.87
31 or More Students	.91	.03	Significant	2.49**
(vs 11-20 Students)				

Exhibit E5.3
ASE Persistence as Predicted by Program Instructional Characteristics

	Substantially Less Likely to be a Persister * Substantially More Likely to be a Persister **			
	Logistic Regression Coefficient	Standard Error (SE)	Statistical Significance ($p < .01$)	Odds of 4th Quartile Membership
Time of Instruction				
Day Only	.46	.02	Significant	1.59**
Day & Night	.76	.02	Significant	2.14**
(vs Night Only)				
Learning Environment				
Lab	.62	.02	Significant	1.85**
Independent Study	.26	.02	Significant	1.30
(vs Teacher & Aide)				
Class Size				
1-10 Students	-.19	.02	Significant	.82
21-30 Students	.09	.02	Significant	1.09
31 or More Students	.23	.02	Significant	1.26
(vs 11-20 Students)				

APPENDIX F
Estimation of a Point-In-Time Count of Active Clients

Estimation of a Point-In-Time Count of Active Clients

To determine the active population for any time frame, we must decompose the population into those already attending, and those entering for the first time. In exhibit F.1 we present a simplified method of estimating the number of clients active at the time the National Evaluation began by using the average number of intakes in any month (168,024), and the average percent of students remaining active after x months. For example, on average, 64 percent of all intakes remain active into their third month. This translates into 92,520 clients who initially enrolled two months earlier and were still active in the month in which the study began. We obtained 18 months of attendance data and extrapolate for the next 18 months. This provides us with an estimate of the number of clients in attendance who had begun adult education in the previous three years. Summing across all months yields the approximate number of clients in attendance at a point in time. When the number of clients already in attendance is added to the number of clients who entered during the study year (2,016,288) the result (2,877,799) is the an estimate of the number of clients served in one year. While this process is parsimonious and roughly accurate, it does not correct for seasonal variations in intake and persistence.

Exhibit F.1
Estimation of number of active clients at beginning of study

Months From Intake	Pct Remaining	Clients Still Enrolled
0	100	168,024
1	80	115,162
2	64	92,520
3	55	78,259
4	45	64,037
5	40	56,855
6	35	50,411
7	31	44,670
8	29	41,435
9	26	36,884
10	23	33,473
11	21	30,261
12	20	28,024
13	17	25,064
14	16	23,034
15	12	16,818
16	10	14,770
17	9	12,872
18	8	11,654
19	6	9,269
20	6	8,608
21	5	7,174
22	5	7,174
23	5	7,174
24	4	5,739
25	4	5,739
26	4	5,739
27	3	4,304
28	3	4,304
29	3	4,304
30	2	2,869
31	2	2,869
32	2	2,869
33	2	2,869
34	1	1,435
35	1	1,435
36	1	1,435
Total continuing students		861,511

Note: Extrapolations are shaded. Months 0-18 are based on average percent of clients remaining after x months of instruction.

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